Universidade de Lisboa
Faculdade de Motricidade Humana

"Enhancing practice efficiency through contextual interference in youth football"

Dissertação elaborada com vista à obtenção do Grau de Mestre em Treino Desportivo

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Abstract

To better understand how introducing variability in training could enhance motor skills learning, we compared a training approach without addition of variability in the practice conditions, with an approach with contextual interference in young football players. 12 athletes between the ages of 11 and 12 were divided into 2 groups, control (6) and experimental (6). The control group performed exercises with no variability in practice conditions and the experimental group performed exercises with contextual interference by series. They trained for 6 weeks, twice a week (30 minutes sessions), on ball control and shooting at goal tasks. Three evaluations were made, one initial, one intermediate and one final and were carried out two weeks apart. Both groups had the same amount of repetitions during the practice sessions. The experimental group improvement regarding ball control was statistically significant from the control group and the experimental group also hit the goal significantly more than the control group. These results allow us to suggest that adding variability to practice may lead to technical improvements in young football players and that variability in practice may potentialize an adaptive behavior to the environment.

Keywords: *Variability, Motor Skills, Contextual Interference, Adaptation, Football, Stabilization, Acquisition, Differential Learning.*

1. Introduction

How motor skills are learned has always been an important subject in which researchers and professionals in coaching/educational fields have tried to optimize. Traditional influential models and theories of motor learning conceived of motor skills acquisition as a stabilization of the performance process (e.g. structure formation), in which initial inconsistency and lack of coordination in movement are gradually eliminated and replaced by patterned and accurate movements (Tani, Basso, Ugrinowitsch & Choshi, 2014) .

These models and theories have been questioned (Button, Lee, Dutt-Mazumder, Tan & Chow, 2012) because the characteristics of motor skills associated with team sports are complex and also, they have some degree of variability, so, an approach where a motor behavior is restricted to only one patterned solution seems reductive. Another reason why linear models have been contested is because the motor patterns are based on professional athletes and they do not account for individuality, whereas a more nonlinear approach leaves room to include it. Notwithstanding the contribution of the traditional models for understanding the motor skills phenomena, they display some disadvantages to explain the motor skill acquisition beyond the functional stabilization process.

A practical example of the foremost is during a football shot on a frontal position to the goal: according to the traditional models, during practice, if a player repeats that shot enough times he will "perfect" (i.e., stabilize) the motor skills required for it. But what if during gameplay that player has to take that shot with the weaker foot? What if the player has an opponent behind him/her? What if the defender is at the right side? Or on the contrary on the left side? What if the ball is jumping instead of standing still?

To address this dilemma, new approaches to the study of motor learning have emerged which consider nonlinear variations in movement as the basis of this learning and result in a greater acquisition of motor skills and better rates of motor learning in athletes (Davids, Araújo, Vilar, Renshaw & Pinder, 2013; Schöllhorn, Hegen & Davids, 2012; Schöllhorn, Michelbrink, Welminski & Davids, 2009), such as differential learning (interventions that added variability to movement) and contextual interference (variability due to changes in the conditions of the task).

1.1 Differential Learning

A learning theory that opposes the repetition of movement based on an ideal movement pattern is the differential learning approach proposed by Schöllhorn and its colleagues mainly characterized by taking advantage, of the fluctuations that occur on

human movement. This approach suggests that skill acquisition should be done without movement repetitions and without corrections during the performance of a motor task (Schöllhorn, Mayer-Kress, Newell & Michelbrink, 2009).

This approach does not identify key task constraints and tries to involve maximum variability between single repetitions (Schöllhorn, Beckmann, Janssen & Drepper, 2010). "The fluctuations in the learner's subsystems itself are exploited during learning, because they have the potential to destabilize the whole system. This destabilization process can lead to an instability that has the advantage of requiring less energy in order to achieve a new stable state of organization for the learner" (Schöllhorn, Hegen & Davids, 2012), thus instigating a self-organizing process that forces the system to rearrange itself constantly and emerge with more effective/stable movement pattern. So, movement variability during learning allows the learner to search, find, and subsequently refine appropriate solutions for different performance contexts.

Schöllhorn and his colleagues (Schöllhorn, Hegen & Davids, 2012) suggest that "due to the nonlinearity of motor learning it seems reasonable to expedite training with stochastic perturbations. Monotonous repetitions of movements should be abandoned whereas large variations should be produced in order to initiate self-organization so that a more effective and more efficient learning process can be designed".

1.2 Contextual Interference

Contextual interference is a term which was coined by W.F. Battig (Battig, 1972) and it covers interferences occurring between data concerning execution of tasks in the process of task learning. It was later the focus of the famous study by J.B. Shea & R.L. Morgan (Shea & Morgan, 1979). They first reported that high rather than low amounts of contextual interference benefit motor skill learning and most researchers have investigated this learning approach by comparing fixed amounts of contextual interference so they can control where the results come from (Barreiros, Figueiredo & Godinho, 2007). Varying amounts of contextual interference exist on a continuum, with blocked scheduling serving as the low end of the contextual interference continuum and random scheduling serving as the high end.

Porter and Magill (Porter & Magill, 2010) conducted experiments in their study where they wanted to investigate if systematically increasing contextual interference during practice would benefit skill learning more than fixed amounts of low and high contextual interference and whether these expected benefits were limited to tasks controlled by the same or different generalized motor programs. The results show that a

practice schedule offering systematic increases in contextual interference facilitates skill learning and these learning benefits generalize to tasks controlled by the same and different generalized motor programs. So, “by changing the practice environment in conjunction with skill being developed, the learner is challenged at the appropriate level in the initial stage of learning, which appears to be a key feature for improving skill” (Porter & Magill, 2010).

1.3 An Adaptive Process of Motor Learning

Motor learning models need to explain not only the pattern formation, but also how they transform into new ones, i.e., adaptation. Motor skills are goal directed by nature and most have an environmental goal. What this means is there occurs an intrinsic coupling between the performance of motor skill and the environment.

Adaptation is the process of change by which an organism or species becomes better suited to its environment and it occurs when changes in the environment perturb the system, challenging its stability and causing uncertainties. Having this in mind, Tani and his colleagues (Tani, Corrêa, Basso, Benda, Ugrinowitsch & Choshi, 2014), developed a model where the skill structure is assumed to be organized hierarchically at macroscopic (overall pattern that emerges from the interaction of the components that is understood to be responsible for making actions consistent) and microscopic levels (the components themselves).

This process is based on two phases; the stabilization and the adaptation phase. In the stabilization process, the formation of the spatiotemporal pattern of motor skill (macrostructure) based on negative feedback mechanism occurs, i.e., a process of diminishing error and inconsistencies in the motor responses that implies a functional patterning. Once stabilized, motor skills can be perturbed and thus, adaptation, is one in which “new skills are formed from the reorganization of those already acquired to respond to those uncertainties. It might occur in three ways: (a) through the flexibility of the system, i.e. alteration of parameters (parametric adaptation); (b) by reorganization of the skill structure (structural adaptation); and (c) through the emergence of a completely new structure (self-organizational adaptation)” (Tani, Corrêa, Basso, Benda, Ugrinowitsch & Choshi, 2014) (please see figure 1).

This approach has influenced some research in the recent years (Barrosa, Tani & Corrêa, 2017; Pinheiro, Marques, Tani & Corrêa, 2015) and the main hypothesis investigated in these studies was that different conditions of practice could lead the human

movement system to different levels of functional stabilization and, consequently, types of adaptation.

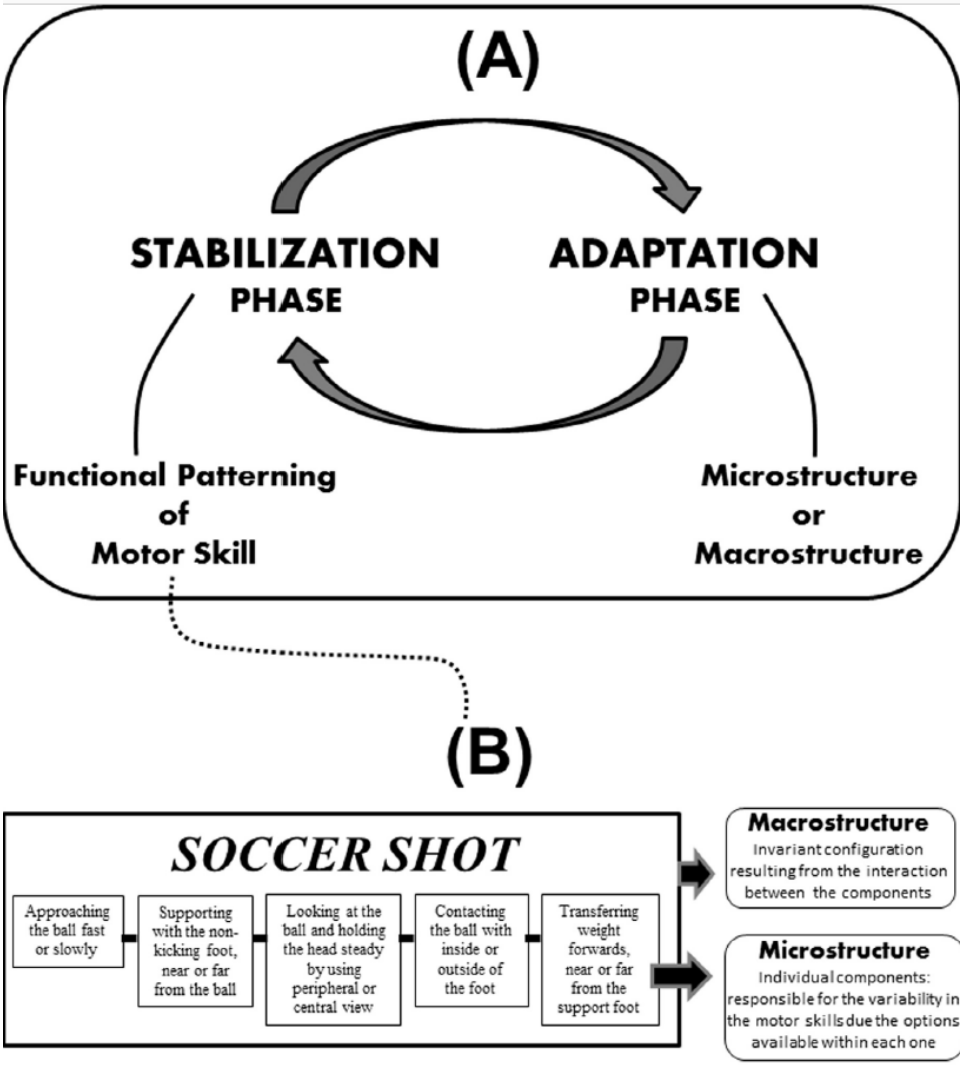

Figure 1. Illustration of (A) adaptive process of motor learning involving the phases of functional stabilization (structure/pattern formation) and adaptation (structure/pattern reorganization), and (B) hierarchical organization of a motor skill control structure (a soccer shot example) [13].

Functional stabilization implies formation of a structure, so one could wonder how could we promote this adaptation. The structure formed should reflect the two basic characteristics of motor skills based on performance, consistency and variability. “Consistency is necessary to achieve goals with reliability and variability is fundamental to cope with environmental instability” (Tani, Corrêa, Basso, Benda, Ugrinowitsch & Choshi, 2014).

So, the aim of this study was to compare a training approach efficiency without addition of variability in the practice conditions, with an approach with contextual interference in young football players

2. Method

2.1 Participants

The participants were 12 young athletes (for calculation of sample size GPower software was used and the results are in the annexes) of football between the ages of 11-12 years, which will be divided randomly by two groups, one control (n = 6) and one experimental (n = 6). The data collection, for the convenience of the author of this study, was carried out in a team from the district of Lisboa because they are athletes in the club with which the author works and easily has access and control over the training process. The exclusion criteria of the data collection process were: (i) absence in any of the three moments of evaluation and (ii) lack of attendance to more than 3 training sessions. This study was approved by the Ethics Council for Research of the Faculty of Human Kinetics.

2.2 Task

The control group perform a task with no contextual interference, starts with a pass and then the receiver (i.e., ball carrier) has to decide to which side to turn and shot the goal while in the meantime the defender pressures him; he can only leave his position after the opponent receives the ball (please see figure 2).

The experimental group perform a task with contextual interference where the receiver (i.e., ball carrier) starting position was manipulated at every attempt, with a change of the angle between the ball carrier, the defender and the goal (please see figure 3).

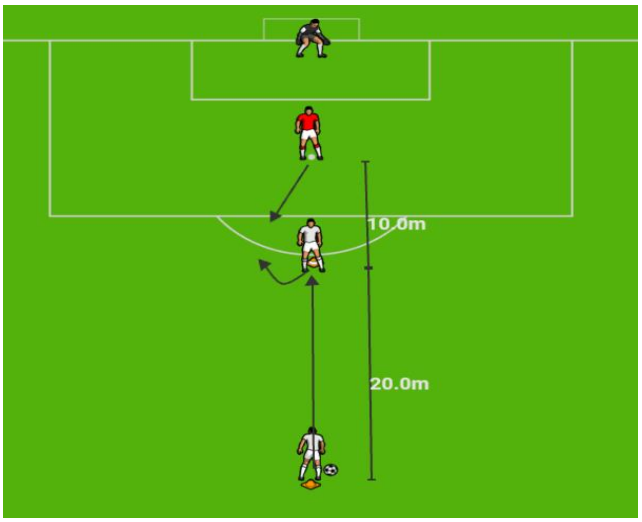

Figure 2. Task for the control group with no contextual interference

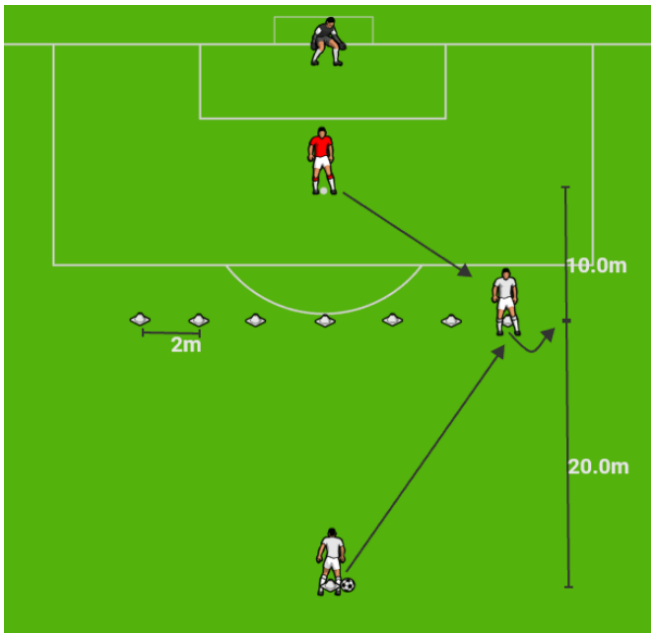

Figure 3. Task for the experimental group with contextual interference

2.3 Procedures

The study ran for 6 weeks, where both groups performed two training sessions per week (30 minutes early from normal training time) for a total of 12 sessions. Three evaluations were made, one initial, one intermediate and one final (please see appendix 1). The evaluations were carried out two weeks apart.

The control group performed exercises with no variability in practice conditions (please see figure 2) and the experimental group performs exercises with contextual interference by series (please see figure 3) in which ordered series of repetitions of the different variants of the motor task are done. Both groups had the same amount of

repetitions during the practice sessions. The practice conditions previously described for both groups are the independent variables of this study.

For both groups the data collection was done through notational analysis where it was made a record of occurrences of the following events that will be the dependent variables of the study: i) to which side the attacker turned after receiving the pass; ii) the ball carrier behavior after turning to the goal – divided into 4 variables: did the attacker shot through the left side of the defender, the right side, was he tackled or did he dribbled the defender; iii) the ball goes towards the goal or not. This sum a total of 6 dependent variables under analysis on this study. The task used to collect the data was figure 3 and every participant had one shot per position (7) from right to left. For this purpose, video images were recorded. These images are stored and encoded in a database and the only person with access to them is the lead author of the study.

2.4 Statistical Analysis

For the analysis of the above described variables it will be used statistical descriptive of the occurrences and to compare the groups will be used the non-parametric statistical test Chi-square ($\chi 2$).

3. Results

The results are display divided by sub-sections, which represent each one of the six dependent variables under analysis. For the sake of a better understanding of the results, the variables "attacker shot through the left side of the defender" and "attacker shot through the right side of the defender" were combined into one sub-section.

3.1 Rotation after receiving the ball

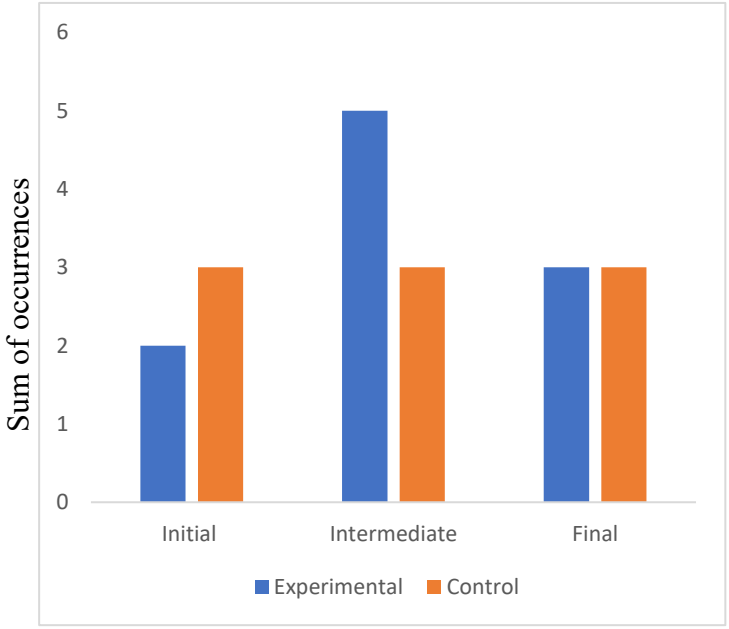

Figure 4. Number of times the attacker rotated left after receiving the ball – 2nd position

On every position but one, both groups did not display a clear pattern. The exception was on the 2nd position (i.e., right side of the performance area), where the experimental group displayed a noticeable improvement on the number of times the ball carrier rotated left after receiving the ball (please see figure 4). On the contrary, the control group remained constant across the three assessment moments.

3.2 Attacker shot through the left or right side of the defender

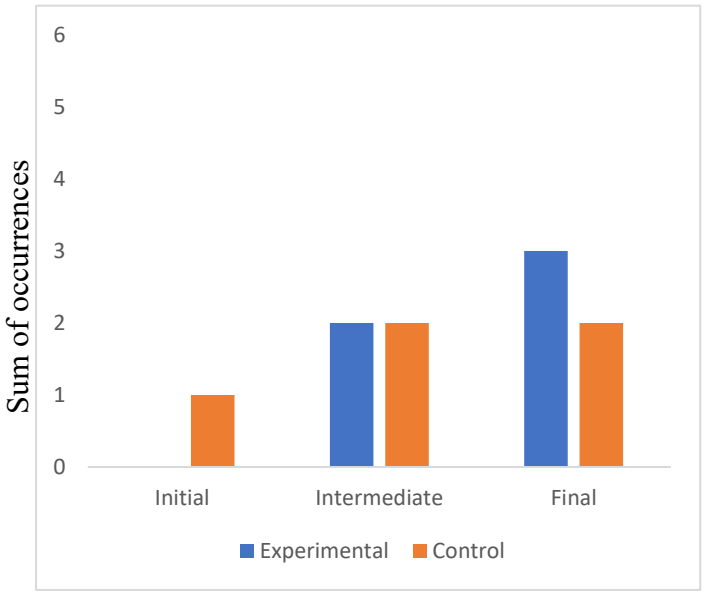

Figure 5. Ball shot through the left side of the defender - 1st position

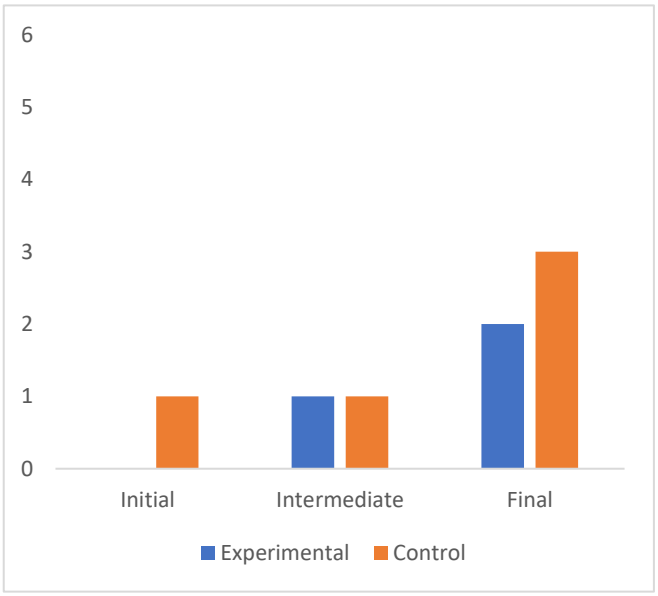

Figure 6. Ball shot through the right side of the defender – 5th position

Both groups adapted sideways to the position they shot from, i.e., if the position where the ball received was on the right side of the performance field the players shoot often to the left side of the defender. The experimental group increase the frequency of shooting through the left side of the defender, whereas the control increase the frequency from the initial from the intermediate assessment but remain constant from the intermediate to the final assessment (please see figure 5). On the contrary and if the position where the ball was received was on the left side of the performance field the players shoot often to the right side of the defender. A tendency that increase along the three assessment moments (please see figure 6). For the remaining positions, there is no clear pattern.

3.3 Attacker was tackled by the defender

Table 1. Chi-square tests for "attacker was tackled by the defender" for the 3rd position on the intermediate evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	7,543[a]	1	,006	,015	,015	
Continuity Correction[b]	4,482	1	,034			
Likelihood Ratio	9,417	1	,002	,015	,015	
Fisher's Exact Test				,015	,015	
Linear-by-Linear Association	6,857[c]	1	,009	,015	,015	,015
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is -2,619.

Regarding the number of occurrences that the defender took advantage over the ball carrier, on figure 7 and 8 display a tendency where both groups get tackled less by the defender as time goes by but only on positions 1 and 5. Also, we can see a major improvement in the experimental group for the first position (please see figure 7). The only statistically significance difference between

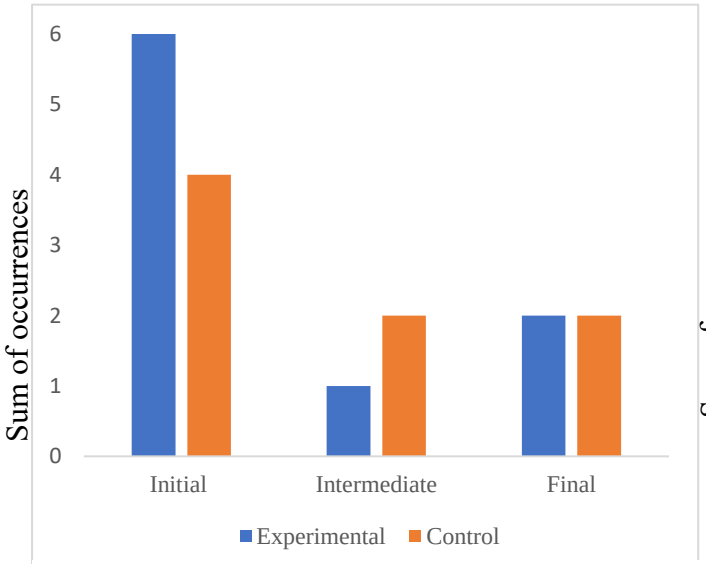

Figure 7. Defender tackled the attacker - 1st position

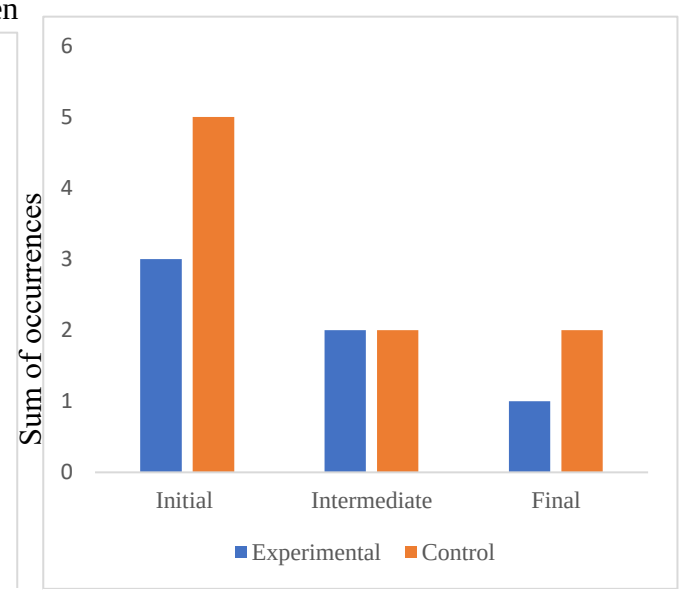

Figure 8. Defender tackled the attacker – 5th position

the control and experimental group was for the 3rd position on the intermediate evaluation (please see table 1).

3.4 Attacker dribbled the defender

Across all attempts, the control group only managed to dribble the defender 5 times, while the experimental group dribbled 15 times (for more information see appendix 6). No tendency stood-out from the descriptive of the occorences and the non-parametric statistical test Chi-square ($\chi 2$).

3.5 Ball goes towards the target

Table 2. Chi-square tests for "shot hit the target" for the 3rd position on the intermediate evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	5,238[a]	1	,022	,061	,045	
Continuity Correction[b]	2,753	1	,097			
Likelihood Ratio	6,782	1	,009	,061	,045	
Fisher's Exact Test				,061	,045	
Linear-by-Linear Association	4,762[c]	1	,029	,061	,045	,045
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is 2,182.

As shown above, (please see table 2) being statistically significant, we can see that there is a difference between groups meaning that the experimental group hit the target often than the control group for the 3rd position on the intermediate evaluation.

4. Discussion

The discussion is divided by sub-sections, which represent each one of the six dependent variables under analysis. For the sake of a better understanding of the results, the variables "attacker shot through the left side of the defender" and "attacker shot through the right side of the defender" were combined into one sub-section.

4.1 Rotation after receiving the ball

On the 2nd position (right side of the performance field) the experimental group displayed a noticeable improvement on the number of times the ball carrier rotated left after receiving the ball indicating that perhaps the ball carrier tried to take advantage of the wide angle they have to shot at goal if rotate this way.

4.2 Attacker shot through the left or right side of the defender

Concerning which side of the defender the ball carrier shoot at goal, we can say that both groups displayed some adaptation. However, we would like to emphasize that the experimental group on the right side of the performance field (i.e., position 1) displayed an increase tendency for shooting through the left side of the defender along the three evaluation moments. This may suggest an adaptive behavior for the experimental group exploring the side that the defender left available.

4.3 Attacker was tackled by the defender

Along the three evaluation moments the ball carrier from both groups were tackled less by the defender, which means that both groups improved their technical skills regarding ball possession. But the results unravel that the experimental group improvement was statistically significant regarding the control group, which means that ball carrier from the experimental group display a higher improvement of the technical skills to avoid the defender than the ball carrier from the control group. This result reinforces that adding variability to the practice led to technical improvements (Davids, Araújo, Vilar, Renshaw & Pinder, 2013; Schöllhorn, Michelbrink, Welminski & Davids, 2009).

4.4 Attacker dribbled the defender

Dribbling your opponent is one of the most difficult technical skills in football. So it was expected that not only the defender could easily tackle the ball carrier if they took too long to shot. So it seems natural that the results indicate that only a small difference between the experimental group and the control group was observed (although the experimental group managed to dribble the defender 15 times more across all attempts).

4.5 Ball goes towards the target

The experimental group hit the target significantly more than the control group on the 3rd position on the intermediate evaluation suggesting that the experimental group had, to some extent, a steeper learning curve. Again, and in some sense similar to what data suggest for the skill of shooting to one of the sides of the defender, and displayed for the improvements of ball carrier technical skills to avoid the defender, this result reinforces that adding variability to practice may lead to improve technical skills in young football players.

5. Conclusions

In summary, the results of this study allow us to suggest that adding variability to practice may lead to technical improvements in young football players and that variability in practice may potentialize an adaptive behavior to the environment.

As a recommendation for future studies, and in order to improve the accuracy in the data collection, this procedure should be made outside of the normal practice hours and some extra time should be accounted for (repetitions if the pass does not go perfectly for example). Additionally and without disturbing the possibility of performing a longitudinal study, the sample size should be increased. Finally ensure the accuracy of task constraints such as player's initial position on each trial as well as ball path and velocity (perhaps using a radar to measure ball velocity).

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Appendix

Appendix 1 - Scheduling

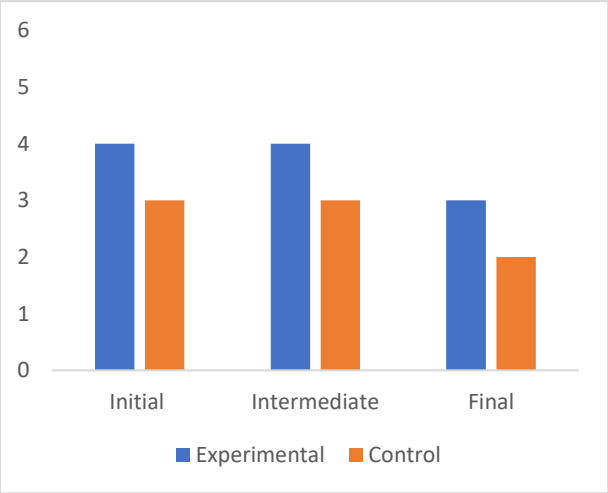
April

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

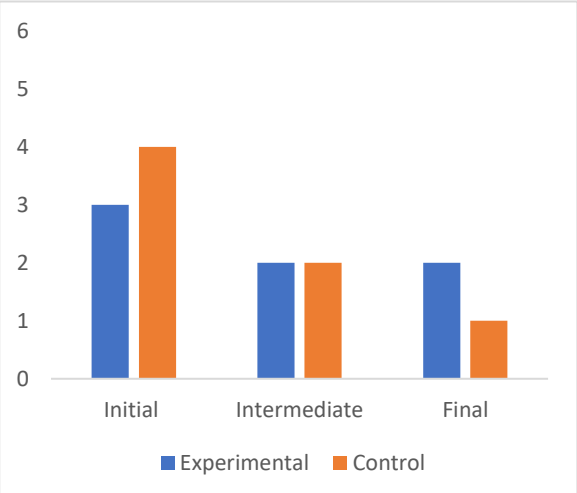
May

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

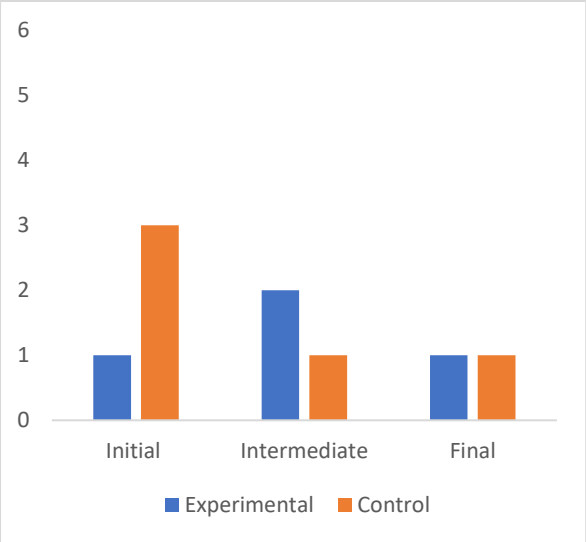
Appendix 2 – Rotation after receiving the ball



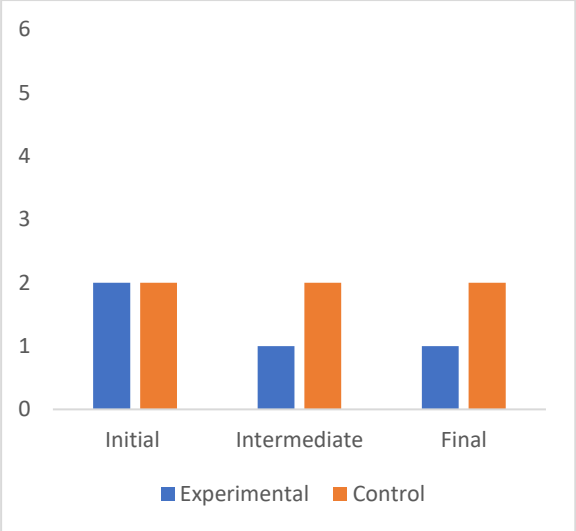
Where did the attacker turn after receiving the ball - 1st position (number of times that he rotated to the left)



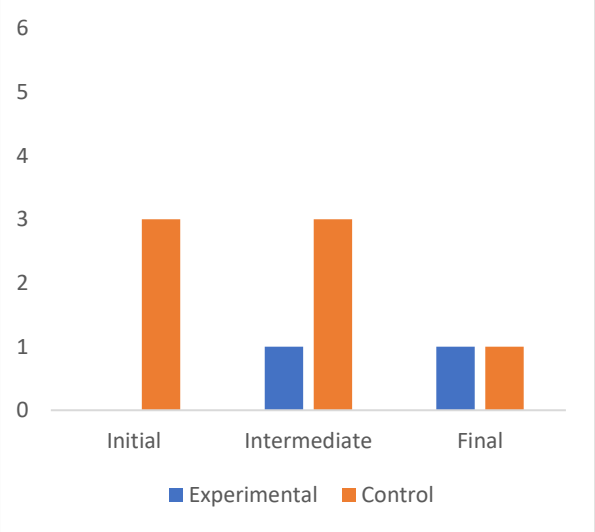
Where did the attacker turn after receiving the ball – 3rd position (number of times that he rotated to the left)



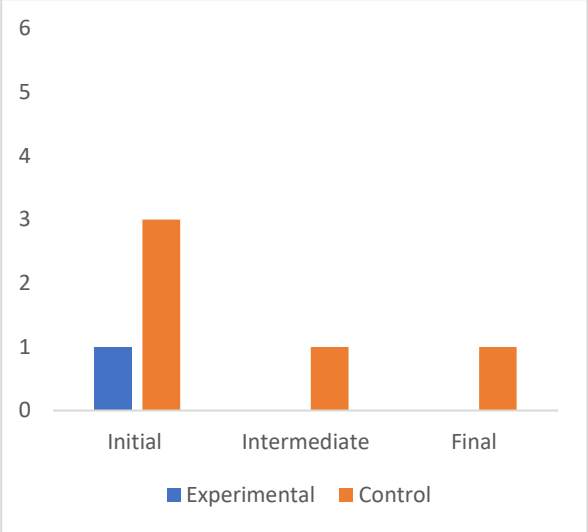
Where did the attacker turn after receiving the ball – 4th position (number of times that he rotated to the left)



Where did the attacker turn after receiving the ball – 5th position (number of times that he rotated to the left)



Where did the attacker turn after receiving the ball – 6th position (number of times that he rotated to the left)



Where did the striker turn after receiving the ball – 7th position (number of times that he rotated to the left)

Group * Rotation_I1 Crosstabulation

Count

		Rotation_I1		
		Left	Right	Total
Group	Control	3	3	6
	Experimental	2	4	6
Total		5	7	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,343[a]	1	,558	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,345	1	,557	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,314[c]	1	,575	1,000	,500	,379
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,50.

b. Computed only for a 2x2 table

c. The standardized statistic is ,561.

Group * Rotation_M1 Crosstabulation

Count

		Rotation_M1		
		Left	Right	Total
Group	Control	2	3	5
	Experimental	3	3	6
Total		5	6	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,110[a]	1	,740	1,000	,608	
Continuity Correction[b]	,000	1	1,000			

Likelihood Ratio	,110	1	,740	1,000	,608	
Fisher's Exact Test				1,000	,608	
Linear-by-Linear Association	,100[c]	1	,752	1,000	,608	,433
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.
b. Computed only for a 2x2 table
c. The standardized statistic is -,316.

Group * Rotation_F1 Crosstabulation

Count

		Rotation_F1		
		Left	Right	Total
Group	Control	3	2	5
	Experimental	3	3	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,110[a]	1	,740	1,000	,608	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,110	1	,740	1,000	,608	
Fisher's Exact Test				1,000	,608	
Linear-by-Linear Association	,100[c]	1	,752	1,000	,608	,433
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.
b. Computed only for a 2x2 table
c. The standardized statistic is ,316.

Group * Rotation_I2 Crosstabulation

Count

		Rotation_I2		
		Left	Right	Total
Group	Control	3	3	6
	Experimental	4	2	6

Total	7	5	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,343[a]	1	,558	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,345	1	,557	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,314[c]	1	,575	1,000	,500	,379
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,50.

b. Computed only for a 2x2 table

c. The standardized statistic is -,561.

Group * Rotation_M2 Crosstabulation

Count

		Rotation_M2		
		Left	Right	Total
Group	Control	2	3	5
	Experimental	1	5	6
Total		3	8	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,749[a]	1	,387	,545	,424	
Continuity Correction[b]	,034	1	,853			
Likelihood Ratio	,754	1	,385	,545	,424	
Fisher's Exact Test				,545	,424	
Linear-by-Linear Association	,681[c]	1	,409	,545	,424	,364
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is ,825.

Group * Rotation_F2 Crosstabulation

Count

		Rotation_F2		
		Left	Right	Total
Group	Control	2	3	5
	Experimental	3	3	6
Total		5	6	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,110[a]	1	,740	1,000	,608	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,110	1	,740	1,000	,608	
Fisher's Exact Test				1,000	,608	
Linear-by-Linear Association	,100[c]	1	,752	1,000	,608	,433
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.
b. Computed only for a 2x2 table
c. The standardized statistic is -,316.

Group * Rotation_I3 Crosstabulation

Count

		Rotation_I3		
		Left	Right	Total
Group	Control	2	4	6
	Experimental	3	3	6
Total		5	7	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,343[a]	1	,558	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,345	1	,557	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,314[c]	1	,575	1,000	,500	,379
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,50.
b. Computed only for a 2x2 table
c. The standardized statistic is -,561.

Group * Rotation_M3 Crosstabulation

Count

		Rotation_M3		
		Left	Right	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.
b. Computed only for a 2x2 table
c. The standardized statistic is -,218.

Group * Rotation_F3 Crosstabulation

Count

		Rotation_F3		
		Left	Right	Total
Group	Control	4	1	5
	Experimental	4	2	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,244[a]	1	,621	1,000	,576	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,249	1	,618	1,000	,576	
Fisher's Exact Test				1,000	,576	
Linear-by-Linear Association	,222[c]	1	,637	1,000	,576	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.

b. Computed only for a 2x2 table

c. The standardized statistic is ,471.

Group * Rotation_I4 Crosstabulation

Count

		Rotation_I4		
		Left	Right	Total
Group	Control	3	3	6
	Experimental	5	1	6
Total		8	4	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,500[a]	1	,221	,545	,273	
Continuity Correction[b]	,375	1	,540			

Likelihood Ratio	1,552	1	,213	,545	,273	
Fisher's Exact Test				,545	,273	
Linear-by-Linear Association	1,375[c]	1	,241	,545	,273	,242
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,00.
b. Computed only for a 2x2 table
c. The standardized statistic is -1,173.

Group * Rotation_M4 Crosstabulation

Count

		Rotation_M4		
		Left	Right	Total
Group	Control	4	1	5
	Experimental	4	2	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,244[a]	1	,621	1,000	,576	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,249	1	,618	1,000	,576	
Fisher's Exact Test				1,000	,576	
Linear-by-Linear Association	,222[c]	1	,637	1,000	,576	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is ,471.

Group * Rotation_F4 Crosstabulation

Count

		Rotation_F4		
		Left	Right	Total
Group	Control	4	1	5

	Experimental	5	1	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,020[a]	1	,887	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,020	1	,887	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,019[c]	1	,892	1,000	,727	,545
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.
b. Computed only for a 2x2 table
c. The standardized statistic is -,136.

Group * Rotation_I5 Crosstabulation

Count

		Rotation_I5		
		Left	Right	Total
Group	Control	4	2	6
	Experimental	4	2	6
Total		8	4	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,000[a]	1	1,000	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,000	1	1,000	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,000[c]	1	1,000	1,000	,727	,455

N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,00.
b. Computed only for a 2x2 table
c. The standardized statistic is ,000.

Group * Rotation_M5 Crosstabulation

Count

		Rotation_M5		
		Left	Right	Total
Group	Control	3	2	5
	Experimental	5	1	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,749[a]	1	,387	,545	,424	
Continuity Correction[b]	,034	1	,853			
Likelihood Ratio	,754	1	,385	,545	,424	
Fisher's Exact Test				,545	,424	
Linear-by-Linear Association	,681[c]	1	,409	,545	,424	,364
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is -,825.

Group * Rotation_F5 Crosstabulation

Count

		Rotation_F5		
		Left	Right	Total
Group	Control	3	2	5
	Experimental	5	1	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,749[a]	1	,387	,545	,424	
Continuity Correction[b]	,034	1	,853			
Likelihood Ratio	,754	1	,385	,545	,424	
Fisher's Exact Test				,545	,424	
Linear-by-Linear Association	,681[c]	1	,409	,545	,424	,364
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is -,825.

Group * Rotation_I6 Crosstabulation

Count

		Rotation_I6		
		Left	Right	Total
Group	Control	3	3	6
	Experimental	6	0	6
Total		9	3	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	4,000[a]	1	,046	,182	,091	
Continuity Correction[b]	1,778	1	,182			
Likelihood Ratio	5,178	1	,023	,182	,091	
Fisher's Exact Test				,182	,091	
Linear-by-Linear Association	3,667[c]	1	,056	,182	,091	,091
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,50.
b. Computed only for a 2x2 table
c. The standardized statistic is -1,915.

Group * Rotation_M6 Crosstabulation

Count

		Rotation_M6		
		Left	Right	Total
Group	Control	2	3	5
	Experimental	5	1	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,213[a]	1	,137	,242	,197	
Continuity Correction[b]	,737	1	,391			
Likelihood Ratio	2,284	1	,131	,242	,197	
Fisher's Exact Test				,242	,197	
Linear-by-Linear Association	2,012[c]	1	,156	,242	,197	,182
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.
b. Computed only for a 2x2 table
c. The standardized statistic is -1,418.

Group * Rotation_F6 Crosstabulation

Count

		Rotation_F6		
		Left	Right	Total
Group	Control	4	1	5
	Experimental	5	1	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,020[a]	1	,887	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,020	1	,887	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,019[c]	1	,892	1,000	,727	,545
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is -,136.

Group * Rotation_I7 Crosstabulation

Count

		Rotation_I7 Left	Rotation_I7 Right	Total
Group	Control	3	3	6
	Experimental	5	1	6
Total		8	4	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,500[a]	1	,221	,545	,273	
Continuity Correction[b]	,375	1	,540			
Likelihood Ratio	1,552	1	,213	,545	,273	
Fisher's Exact Test				,545	,273	
Linear-by-Linear Association	1,375[c]	1	,241	,545	,273	,242
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,00.
b. Computed only for a 2x2 table
c. The standardized statistic is -1,173.

Group * Rotation_M7 Crosstabulation

Count

		Rotation_M7		
		Left	Right	Total
Group	Control	4	1	5
	Experimental	6	0	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,320[a]	1	,251	,455	,455	
Continuity Correction[b]	,009	1	,924			
Likelihood Ratio	1,698	1	,193	,455	,455	
Fisher's Exact Test				,455	,455	
Linear-by-Linear Association	1,200[c]	1	,273	,455	,455	,455
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.
b. Computed only for a 2x2 table
c. The standardized statistic is -1,095.

Group * Rotation_F7 Crosstabulation

Count

		Rotation_F7		
		Left	Right	Total
Group	Control	4	1	5
	Experimental	6	0	6
Total		10	1	11

Chi-Square Tests

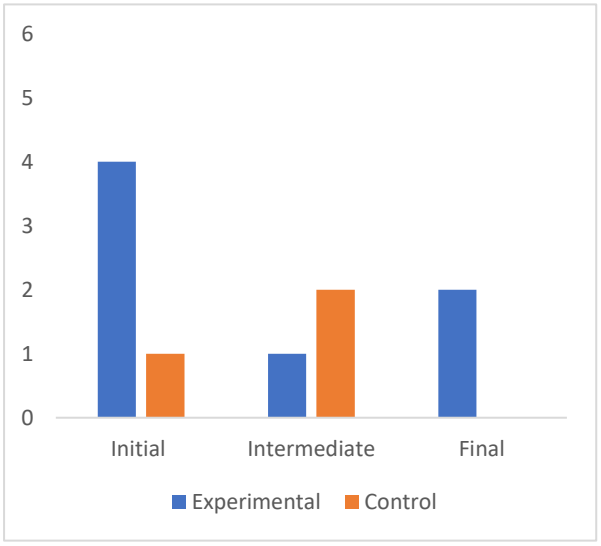
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,320[a]	1	,251	,455	,455	
Continuity Correction[b]	,009	1	,924			
Likelihood Ratio	1,698	1	,193	,455	,455	
Fisher's Exact Test				,455	,455	
Linear-by-Linear Association	1,200[c]	1	,273	,455	,455	,455
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.

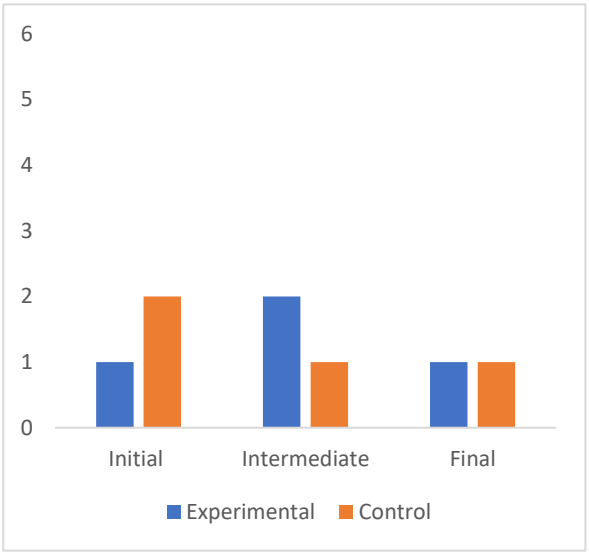
b. Computed only for a 2x2 table

c. The standardized statistic is -1,095.

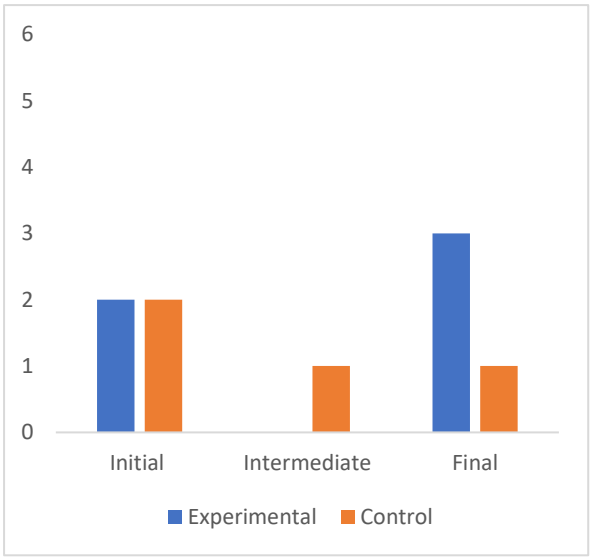
Appendix 3 – Attacker shot through the left of the defender



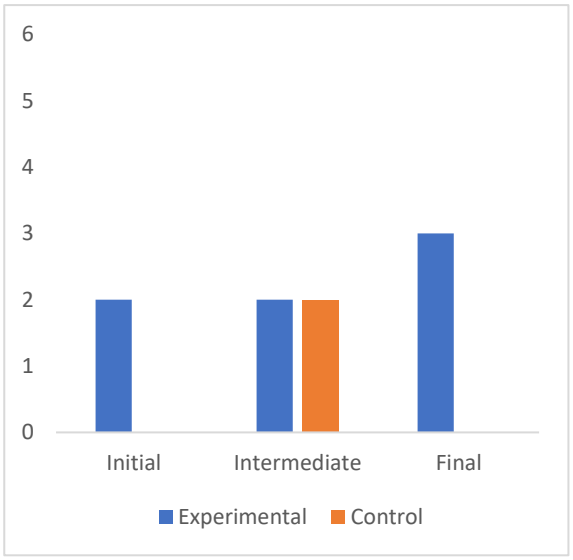
Ball passed through the left of the defender – 2nd position



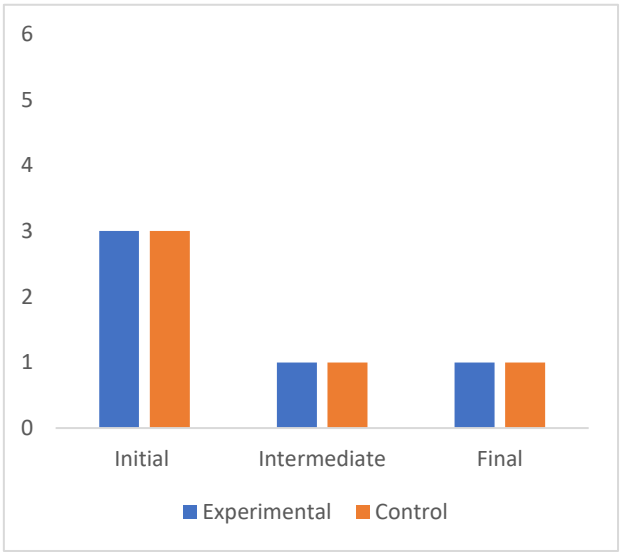
Ball passed through the left of the defender – 3rd position



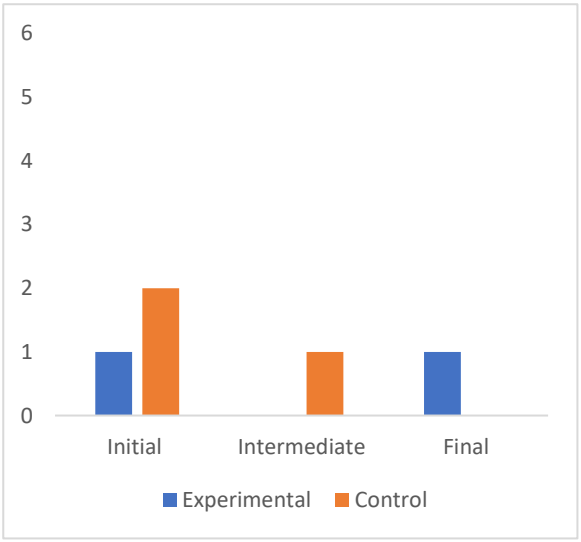
Ball passed through the left of the defender – 4th position



Ball passed through the left of the defender – 5th position



Ball passed through the left of the defender – 6th position



Ball passed through the left of the defender – 7th position

Group * Left_I1 Crosstabulation

Count

		Left_I1		
		No	Yes	Total
Group	Control	5	1	6
	Experimental	6	0	6
Total		11	1	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,091[a]	1	,296	1,000	,500	
Continuity rrection[b]	,000	1	1,000			
Likelihood Ratio	1,477	1	,224	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	1,000[c]	1	,317	1,000	,500	,500
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is ,50.

b. Computed only for a 2x2 table

c. The standardized statistic is -1,000.

Group * Left_M1 Crosstabulation

Count

		Left_M1		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	

Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is -,218.

Group * Left_F1 Crosstabulation

Count

		Left_F1		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	3	3	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,110[a]	1	,740	1,000	,608	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,110	1	,740	1,000	,608	
Fisher's Exact Test				1,000	,608	
Linear-by-Linear Association	,100[c]	1	,752	1,000	,608	,433
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.

b. Computed only for a 2x2 table

c. The standardized statistic is ,316.

Group * Left_I2 Crosstabulation

Count

	Left_I2		
	No	Yes	Total

Group	Control	4	2	6
	Experimental	2	4	6
Total		6	6	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,333[a]	1	,248	,567	,284	
Continuity Correction[b]	,333	1	,564			
Likelihood Ratio	1,359	1	,244	,567	,284	
Fisher's Exact Test				,567	,284	
Linear-by-Linear Association	1,222[c]	1	,269	,567	,284	,244
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 3,00.

b. Computed only for a 2x2 table

c. The standardized statistic is 1,106.

Group * Left_M2 Crosstabulation

Count

		Left_M2 No	Yes	Total
Group	Control	3	2	5
	Experimental	5	1	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,749[a]	1	,387	,545	,424	
Continuity Correction[b]	,034	1	,853			
Likelihood Ratio	,754	1	,385	,545	,424	
Fisher's Exact Test				,545	,424	
Linear-by-Linear Association	,681[c]	1	,409	,545	,424	,364
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is -,825.

Group * Left_F2 Crosstabulation

Count

		Left_F2		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	4	2	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,037[a]	1	,154	,455	,273	
Continuity Correction[b]	,413	1	,521			
Likelihood Ratio	2,793	1	,095	,455	,273	
Fisher's Exact Test				,455	,273	
Linear-by-Linear Association	1,852[c]	1	,174	,455	,273	,273
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.
b. Computed only for a 2x2 table
c. The standardized statistic is 1,361.

Group * Left_I3 Crosstabulation

Count

		Left_I3		
		No	Yes	Total
Group	Control	4	2	6
	Experimental	5	1	6
Total		9	3	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,444[a]	1	,505	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,451	1	,502	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,407[c]	1	,523	1,000	,500	,409
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,50.

b. Computed only for a 2x2 table

c. The standardized statistic is -,638.

Group * Left_M3 Crosstabulation

Count

		Left_M3 No	Yes	Total
Group	Control	4	1	5
	Experimental	4	2	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,244[a]	1	,621	1,000	,576	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,249	1	,618	1,000	,576	
Fisher's Exact Test				1,000	,576	
Linear-by-Linear Association	,222[c]	1	,637	1,000	,576	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.

b. Computed only for a 2x2 table

c. The standardized statistic is ,471.

Group * Left_F3 Crosstabulation

Count

		Left_F3		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	5	1	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,020[a]	1	,887	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,020	1	,887	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,019[c]	1	,892	1,000	,727	,545
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is -,136.

Group * Left_I4 Crosstabulation

Count

		Left_I4		
		No	Yes	Total
Group	Control	4	2	6
	Experimental	4	2	6
Total		8	4	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,000[a]	1	1,000	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,000	1	1,000	1,000	,727	

Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,000[c]	1	1,000	1,000	,727	,455
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,00.
b. Computed only for a 2x2 table
c. The standardized statistic is ,000.

Group * Left_M4 Crosstabulation

Count

		Left_M4		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	6	0	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,320[a]	1	,251	,455	,455	
Continuity Correction[b]	,009	1	,924			
Likelihood Ratio	1,698	1	,193	,455	,455	
Fisher's Exact Test				,455	,455	
Linear-by-Linear Association	1,200[c]	1	,273	,455	,455	,455
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.
b. Computed only for a 2x2 table
c. The standardized statistic is -1,095.

Group * Left_F4 Crosstabulation

Count

		Left_F4		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	3	3	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,061[a]	1	,303	,545	,348	
Continuity Correction[b]	,160	1	,689			
Likelihood Ratio	1,099	1	,295	,545	,348	
Fisher's Exact Test				,545	,348	
Linear-by-Linear Association	,964[c]	1	,326	,545	,348	,303
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is ,982.

Group * Left_I5 Crosstabulation

Count

		Left_I5 No	Yes	Total
Group	Control	6	0	6
	Experimental	4	2	6
Total		10	2	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,400[a]	1	,121	,455	,227	
Continuity Correction[b]	,600	1	,439			
Likelihood Ratio	3,175	1	,075	,455	,227	
Fisher's Exact Test				,455	,227	
Linear-by-Linear Association	2,200[c]	1	,138	,455	,227	,227
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.

b. Computed only for a 2x2 table

c. The standardized statistic is 1,483.

Group * Left_M5 Crosstabulation

Count

		Left_M5		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is -,218.

Group * Left_F5 Crosstabulation

Count

		Left_F5		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	3	3	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3,438[a]	1	,064	,182	,121	
Continuity Correction[b]	1,379	1	,240			

Likelihood Ratio	4,573	1	,032	,182	,121	
Fisher's Exact Test				,182	,121	
Linear-by-Linear Association	3,125[c]	1	,077	,182	,121	,121
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.

b. Computed only for a 2x2 table

c. The standardized statistic is 1,768.

Group * Left_I6 Crosstabulation

Count

		Left_I6		
		No	Yes	Total
Group	Control	3	3	6
	Experimental	3	3	6
Total		6	6	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,000[a]	1	1,000	1,000	,716	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,000	1	1,000	1,000	,716	
Fisher's Exact Test				1,000	,716	
Linear-by-Linear Association	,000[c]	1	1,000	1,000	,716	,433
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 3,00.

b. Computed only for a 2x2 table

c. The standardized statistic is ,000.

Group * Left_M6 Crosstabulation

Count

		Left_M6		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	5	1	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,020[a]	1	,887	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,020	1	,887	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,019[c]	1	,892	1,000	,727	,545
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is -,136.

Group * Left_F6 Crosstabulation

Count

		Left_F6		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	5	1	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability

Pearson Chi-Square	,020[a]	1	,887	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,020	1	,887	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,019[c]	1	,892	1,000	,727	,545
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is -,136.

Group * Left_I7 Crosstabulation

Count

		Left_I7		
		No	Yes	Total
Group	Control	4	2	6
	Experimental	5	1	6
Total		9	3	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,444[a]	1	,505	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,451	1	,502	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,407[c]	1	,523	1,000	,500	,409
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,50.

b. Computed only for a 2x2 table

c. The standardized statistic is -,638.

Group * Left_M7 Crosstabulation

Count

		Left_M7		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	6	0	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,320[a]	1	,251	,455	,455	
Continuity Correction[b]	,009	1	,924			
Likelihood Ratio	1,698	1	,193	,455	,455	
Fisher's Exact Test				,455	,455	
Linear-by-Linear Association	1,200[c]	1	,273	,455	,455	,455
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.

b. Computed only for a 2x2 table

c. The standardized statistic is -1,095.

Group * Left_F7 Crosstabulation

Count

		Left_F7		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	5	1	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability

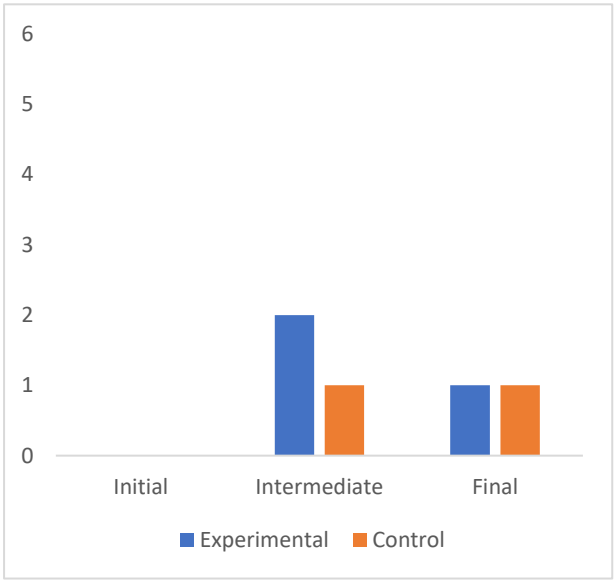
Pearson Chi-Square	,917[a]	1	,338	1,000	,545	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,295	1	,255	1,000	,545	
Fisher's Exact Test				1,000	,545	
Linear-by-Linear Association	,833[c]	1	,361	1,000	,545	,545
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.

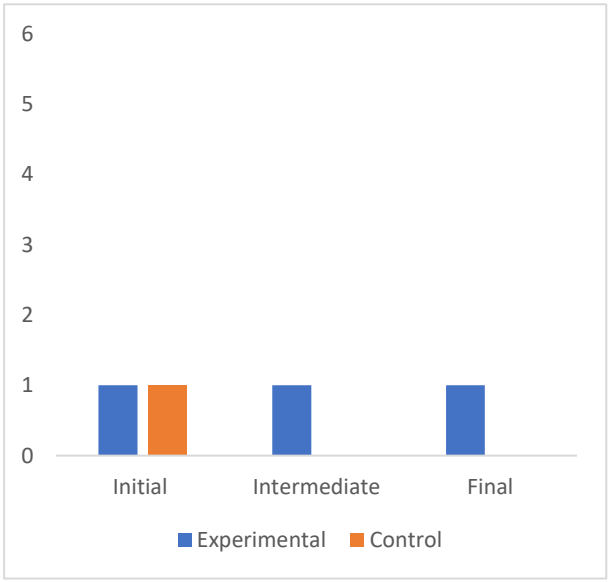
b. Computed only for a 2x2 table

c. The standardized statistic is ,913.

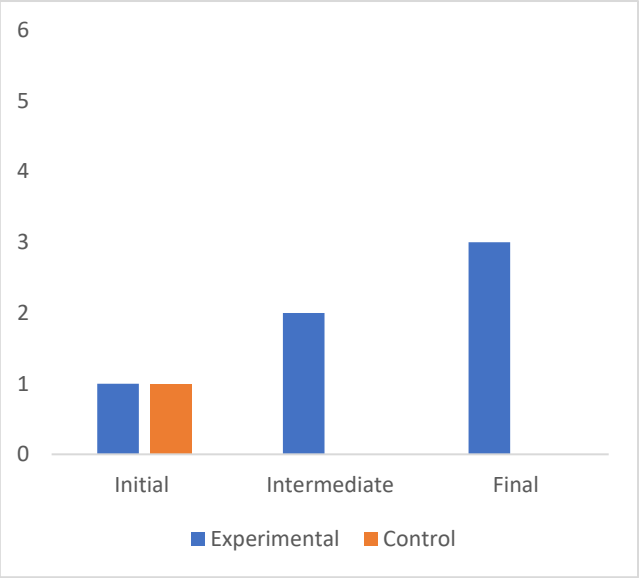
Appendix 4 – Attacker shot through the right of the defender



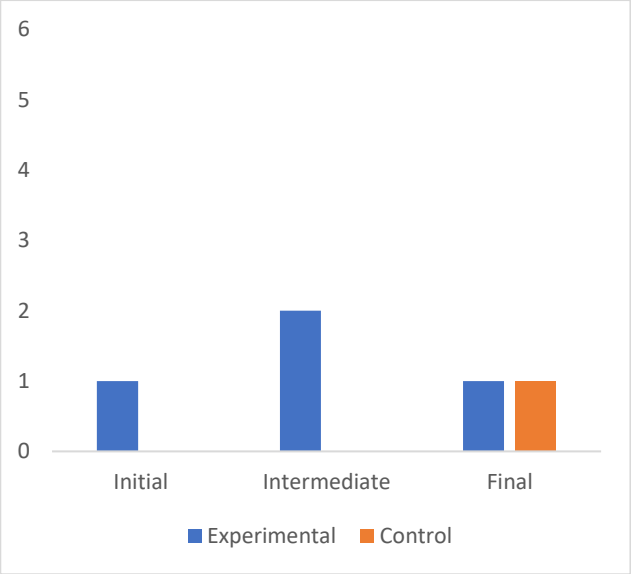
Ball passed through the right of the defender - 1st position



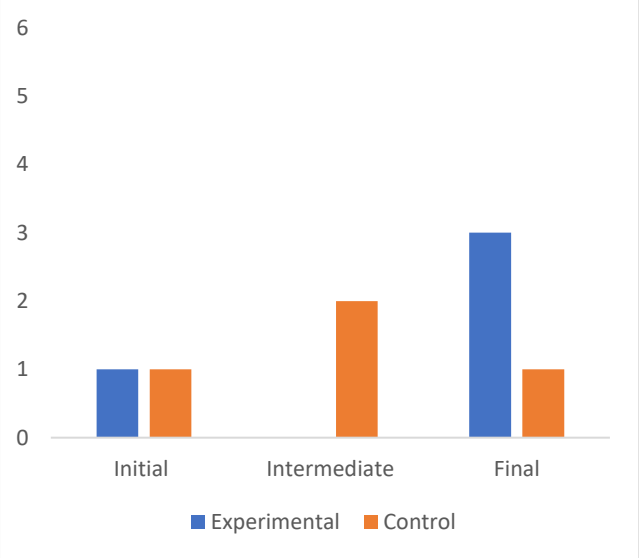
Ball passed through the right of the defender – 2nd position



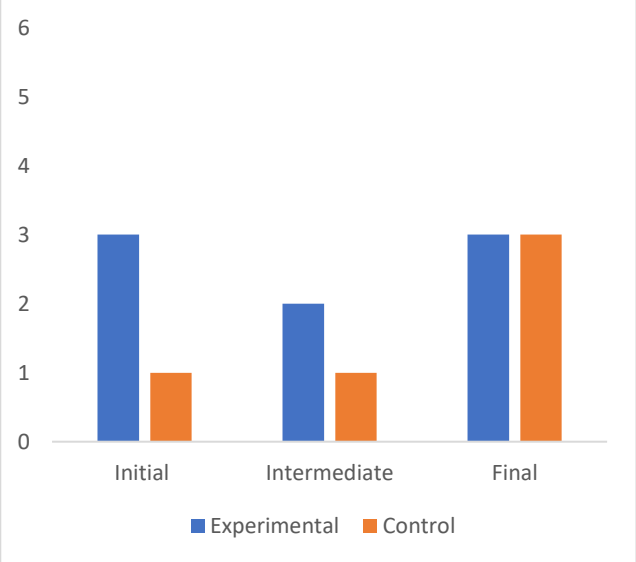
Ball passed through the right of the defender – 3rd position



Ball passed through the right of the defender – 4th position



Ball passed through the right of the defender – 6th position



Ball passed through the right of the defender – 7th position

Group * Right_I1 Crosstabulation

Count

		Right_I1 No	Total
Group	Control	6	6
	Experimental	6	6
Total		12	12

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	12

a. No statistics are computed because Right_I1 is a constant.

Group * Right_M1 Crosstabulation

Count

		Right_M1 No	Yes	Total
Group	Control	4	1	5
	Experimental	4	2	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,244[a]	1	,621	1,000	,576	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,249	1	,618	1,000	,576	
Fisher's Exact Test				1,000	,576	
Linear-by-Linear Association	,222[c]	1	,637	1,000	,576	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.

b. Computed only for a 2x2 table

c. The standardized statistic is ,471.

Group * Right_F1 Crosstabulation

Count

		Right_F1		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	5	1	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,020[a]	1	,887	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,020	1	,887	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,019[c]	1	,892	1,000	,727	,545
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is -,136.

Group * Right_I2 Crosstabulation

Count

		Right_I2		
		No	Yes	Total
Group	Control	5	1	6
	Experimental	5	1	6
Total		10	2	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,000[a]	1	1,000	1,000	,773	
Continuity Correction[b]	,000	1	1,000			

Likelihood Ratio	,000	1	1,000	1,000	,773	
Fisher's Exact Test				1,000	,773	
Linear-by-Linear Association	,000[c]	1	1,000	1,000	,773	,545
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.
b. Computed only for a 2x2 table
c. The standardized statistic is ,000.

Group * Right_M2 Crosstabulation

Count

		Right_M2		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	5	1	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,917[a]	1	,338	1,000	,545	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,295	1	,255	1,000	,545	
Fisher's Exact Test				1,000	,545	
Linear-by-Linear Association	,833[c]	1	,361	1,000	,545	,545
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.
b. Computed only for a 2x2 table
c. The standardized statistic is ,913.

Group * Right_F2 Crosstabulation

Count

		Right_F2		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	5	1	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,917[a]	1	,338	1,000	,545	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,295	1	,255	1,000	,545	
Fisher's Exact Test				1,000	,545	
Linear-by-Linear Association	,833[c]	1	,361	1,000	,545	,545
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.

b. Computed only for a 2x2 table

c. The standardized statistic is ,913.

Group * Right_I3 Crosstabulation

Count

		Right_I3		
		No	Yes	Total
Group	Control	5	1	6
	Experimental	5	1	6
Total		10	2	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,000[a]	1	1,000	1,000	,773	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,000	1	1,000	1,000	,773	
Fisher's Exact Test				1,000	,773	

Linear-by-Linear Association	,000[c]	1	1,000	1,000	,773	,545
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.
b. Computed only for a 2x2 table
c. The standardized statistic is ,000.

Group * Right_M3 Crosstabulation

Count

		Right_M3		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	4	2	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,037[a]	1	,154	,455	,273	
Continuity Correction[b]	,413	1	,521			
Likelihood Ratio	2,793	1	,095	,455	,273	
Fisher's Exact Test				,455	,273	
Linear-by-Linear Association	1,852[c]	1	,174	,455	,273	,273
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.
b. Computed only for a 2x2 table
c. The standardized statistic is 1,361.

Group * Right_F3 Crosstabulation

Count

		Right_F3		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	3	3	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3,438[a]	1	,064	,182	,121	
Continuity Correction[b]	1,379	1	,240			
Likelihood Ratio	4,573	1	,032	,182	,121	
Fisher's Exact Test				,182	,121	
Linear-by-Linear Association	3,125[c]	1	,077	,182	,121	,121
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is 1,768.

Group * Right_I4 Crosstabulation

Count

		Right_I4 No	Right_I4 Yes	Total
Group	Control	6	0	6
	Experimental	5	1	6
Total		11	1	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,091[a]	1	,296	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,477	1	,224	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	1,000[c]	1	,317	1,000	,500	,500
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is ,50.
b. Computed only for a 2x2 table
c. The standardized statistic is 1,000.

Group * Right_M4 Crosstabulation

Count

		Right_M4		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	4	2	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,037[a]	1	,154	,455	,273	
Continuity Correction[b]	,413	1	,521			
Likelihood Ratio	2,793	1	,095	,455	,273	
Fisher's Exact Test				,455	,273	
Linear-by-Linear Association	1,852[c]	1	,174	,455	,273	,273
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is 1,361.

Group * Right_F4 Crosstabulation

Count

		Right_F4		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	5	1	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,020[a]	1	,887	1,000	,727	
Continuity Correction[b]	,000	1	1,000			

Likelihood Ratio	,020	1	,887	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,019[c]	1	,892	1,000	,727	,545
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is -,136.

Group * Right_I5 Crosstabulation

Count

		Right_I5		
		No	Yes	Total
Group	Control	5	1	6
	Experimental	6	0	6
Total		11	1	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,091[a]	1	,296	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,477	1	,224	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	1,000[c]	1	,317	1,000	,500	,500
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is ,50.

b. Computed only for a 2x2 table

c. The standardized statistic is -1,000.

Group * Right_M5 Crosstabulation

Count

		Right_M5		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	5	1	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,020[a]	1	,887	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,020	1	,887	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,019[c]	1	,892	1,000	,727	,545
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is -,136.

Group * Right_F5 Crosstabulation

Count

		Right_F5 No	Yes	Total
Group	Control	2	3	5
	Experimental	4	2	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,782[a]	1	,376	,567	,392	
Continuity Correction[b]	,076	1	,782			
Likelihood Ratio	,790	1	,374	,567	,392	
Fisher's Exact Test				,567	,392	
Linear-by-Linear Association	,711[c]	1	,399	,567	,392	,325
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.
b. Computed only for a 2x2 table
c. The standardized statistic is -,843.

Group * Right_I6 Crosstabulation

Count

		Right_I6		
		No	Yes	Total
Group	Control	5	1	6
	Experimental	5	1	6
Total		10	2	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,000[a]	1	1,000	1,000	,773	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,000	1	1,000	1,000	,773	
Fisher's Exact Test				1,000	,773	
Linear-by-Linear Association	,000[c]	1	1,000	1,000	,773	,545
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.
b. Computed only for a 2x2 table
c. The standardized statistic is ,000.

Group * Right_M6 Crosstabulation

Count

		Right_M6		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	6	0	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,933[a]	1	,087	,182	,182	
Continuity Correction[b]	,861	1	,354			
Likelihood Ratio	3,701	1	,054	,182	,182	
Fisher's Exact Test				,182	,182	
Linear-by-Linear Association	2,667[c]	1	,102	,182	,182	,182
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.
b. Computed only for a 2x2 table
c. The standardized statistic is -1,633.

Group * Right_F6 Crosstabulation

Count

		Right_F6 No	Yes	Total
Group	Control	4	1	5
	Experimental	3	3	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,061[a]	1	,303	,545	,348	
Continuity Correction[b]	,160	1	,689			
Likelihood Ratio	1,099	1	,295	,545	,348	
Fisher's Exact Test				,545	,348	
Linear-by-Linear Association	,964[c]	1	,326	,545	,348	,303
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table
c. The standardized statistic is ,982.

Group * Right_I7 Crosstabulation

Count

		Right_I7		
		No	Yes	Total
Group	Control	5	1	6
	Experimental	3	3	6
Total		8	4	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,500[a]	1	,221	,545	,273	
Continuity Correction[b]	,375	1	,540			
Likelihood Ratio	1,552	1	,213	,545	,273	
Fisher's Exact Test				,545	,273	
Linear-by-Linear Association	1,375[c]	1	,241	,545	,273	,242
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,00.
b. Computed only for a 2x2 table
c. The standardized statistic is 1,173.

Group * Right_M7 Crosstabulation

Count

		Right_M7		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	4	2	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,244[a]	1	,621	1,000	,576	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,249	1	,618	1,000	,576	
Fisher's Exact Test				1,000	,576	
Linear-by-Linear Association	,222[c]	1	,637	1,000	,576	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is ,471.

Group * Right_F7 Crosstabulation

Count

		Right_F7 No	Yes	Total
Group	Control	2	3	5
	Experimental	3	3	6
Total		5	6	11

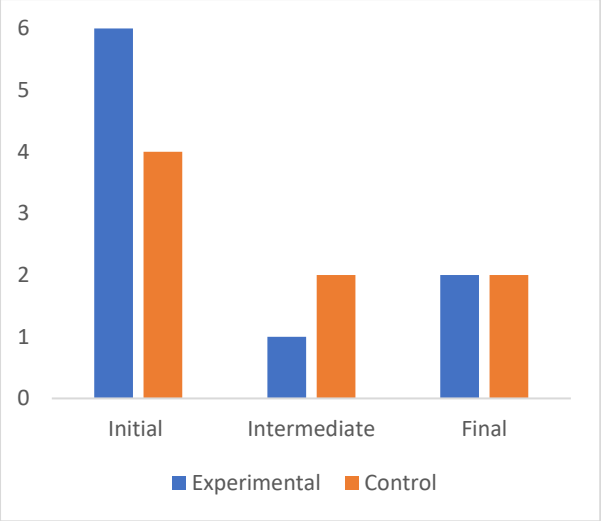
Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,110[a]	1	,740	1,000	,608	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,110	1	,740	1,000	,608	
Fisher's Exact Test				1,000	,608	
Linear-by-Linear Association	,100[c]	1	,752	1,000	,608	,433
N of Valid Cases	11					

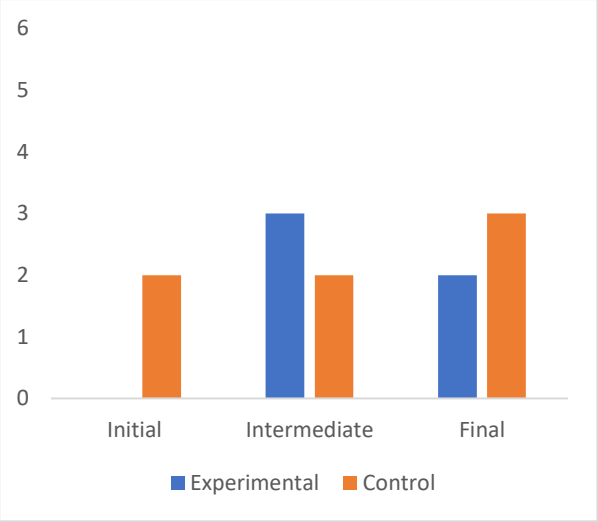
a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.

b. Computed only for a 2x2 table
c. The standardized statistic is -,316.

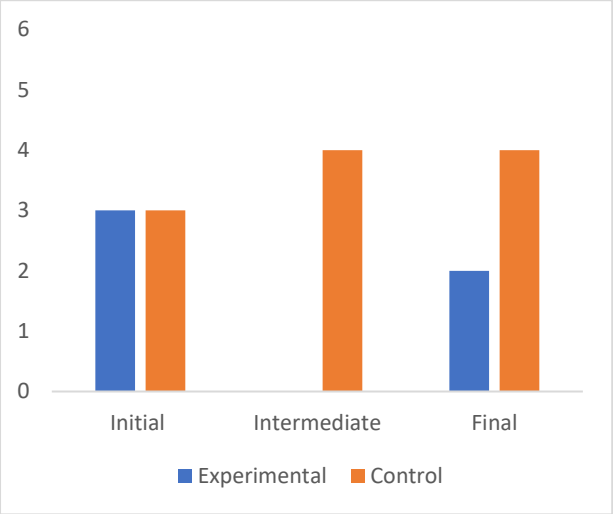
Appendix 5 – Attacker was tackled by the defender



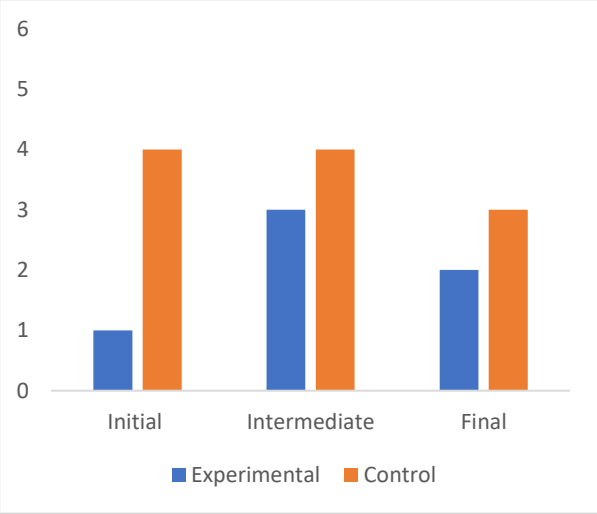
Defender tackled the striker - 1st position



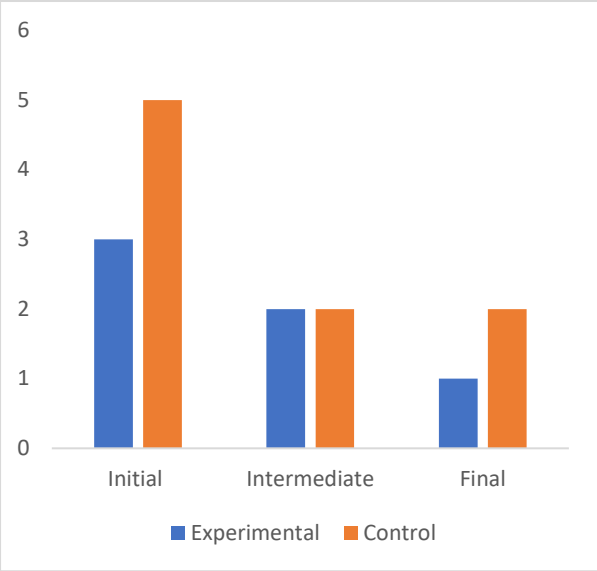
Defender tackled the striker – 2nd position



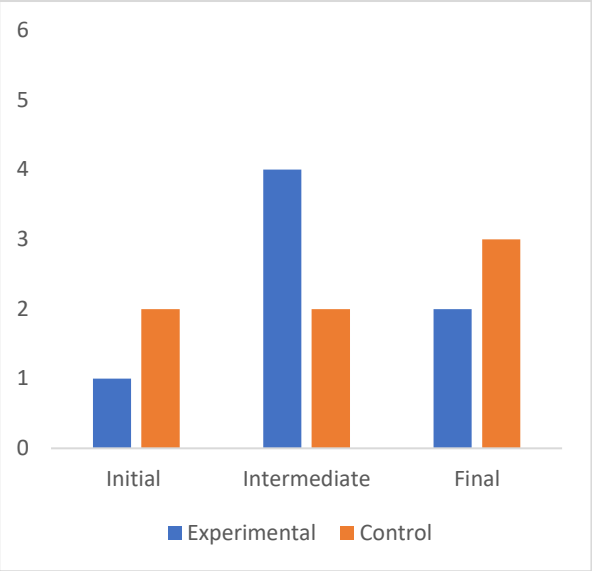
Defender tackled the striker – 3rd position



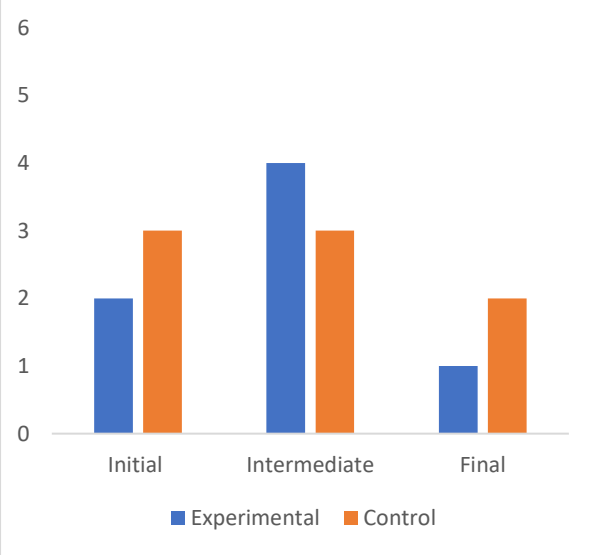
Defender disarmed the striker – 4th position



Defender tackled the striker – 5th position



Defender tackled the striker – 6th position



Defender disarmed the striker – 7th position

Group * Tackle_I1 Crosstabulation

Count

		Tackle_I1		
		No	Yes	Total
Group	Control	2	4	6
	Experimental	0	6	6
Total		2	10	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,400[a]	1	,121	,455	,227	
Continuity Correction[b]	,600	1	,439			
Likelihood Ratio	3,175	1	,075	,455	,227	
Fisher's Exact Test				,455	,227	
Linear-by-Linear Association	2,200[c]	1	,138	,455	,227	,227
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.
b. Computed only for a 2x2 table
c. The standardized statistic is 1,483.

Group * Tackle_M1 Crosstabulation

Count

		Tackle_M1		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	5	1	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,749[a]	1	,387	,545	,424	
Continuity Correction[b]	,034	1	,853			
Likelihood Ratio	,754	1	,385	,545	,424	
Fisher's Exact Test				,545	,424	
Linear-by-Linear Association	,681[c]	1	,409	,545	,424	,364
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is -,825.

Group * Tackle_F1 Crosstabulation

Count

		Tackle_F1		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is -,218.

Group * Tackle_I2 Crosstabulation

Count

		Tackle_I2		
		No	Yes	Total
Group	Control	4	2	6
	Experimental	6	0	6
Total		10	2	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,400[a]	1	,121	,455	,227	
Continuity Correction[b]	,600	1	,439			

Likelihood Ratio	3,175	1	,075	,455	,227	
Fisher's Exact Test				,455	,227	
Linear-by-Linear Association	2,200[c]	1	,138	,455	,227	,227
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.
b. Computed only for a 2x2 table
c. The standardized statistic is -1,483.

Group * Tackle_M2 Crosstabulation

Count

		Tackle_M2		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	3	3	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,110[a]	1	,740	1,000	,608	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,110	1	,740	1,000	,608	
Fisher's Exact Test				1,000	,608	
Linear-by-Linear Association	,100[c]	1	,752	1,000	,608	,433
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.
b. Computed only for a 2x2 table
c. The standardized statistic is ,316.

Group * Tackle_F2 Crosstabulation

Count

		Tackle_F2		
		No	Yes	Total
Group	Control	2	3	5
	Experimental	4	2	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,782[a]	1	,376	,567	,392	
Continuity Correction[b]	,076	1	,782			
Likelihood Ratio	,790	1	,374	,567	,392	
Fisher's Exact Test				,567	,392	
Linear-by-Linear Association	,711[c]	1	,399	,567	,392	,325
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.

b. Computed only for a 2x2 table

c. The standardized statistic is -,843.

Group * Tackle_I3 Crosstabulation

Count

		Tackle_I3		
		No	Yes	Total
Group	Control	3	3	6
	Experimental	3	3	6
Total		6	6	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,000[a]	1	1,000	1,000	,716	
Continuity Correction[b]	,000	1	1,000			

Likelihood Ratio	,000	1	1,000	1,000	,716	
Fisher's Exact Test				1,000	,716	
Linear-by-Linear Association	,000[c]	1	1,000	1,000	,716	,433
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 3,00.
b. Computed only for a 2x2 table
c. The standardized statistic is ,000.

Group * Tackle_F3 Crosstabulation

Count

		Tackle_F3		
		No	Yes	Total
Group	Control	1	4	5
	Experimental	4	2	6
Total		5	6	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,396[a]	1	,122	,242	,175	
Continuity Correction[b]	,883	1	,347			
Likelihood Ratio	2,516	1	,113	,242	,175	
Fisher's Exact Test				,242	,175	
Linear-by-Linear Association	2,178[c]	1	,140	,242	,175	,162
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.
b. Computed only for a 2x2 table
c. The standardized statistic is -1,476.

Group * Tackle_I4 Crosstabulation

Count

		Tackle_I4		
		No	Yes	Total
Group	Control	2	4	6
	Experimental	5	1	6
Total		7	5	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3,086[a]	1	,079	,242	,121	
Continuity Correction[b]	1,371	1	,242			
Likelihood Ratio	3,256	1	,071	,242	,121	
Fisher's Exact Test				,242	,121	
Linear-by-Linear Association	2,829[c]	1	,093	,242	,121	,114
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,50.

b. Computed only for a 2x2 table

c. The standardized statistic is -1,682.

Group * Tackle_M4 Crosstabulation

Count

		Tackle_M4		
		No	Yes	Total
Group	Control	1	4	5
	Experimental	3	3	6
Total		4	7	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,061[a]	1	,303	,545	,348	
Continuity Correction[b]	,160	1	,689			
Likelihood Ratio	1,099	1	,295	,545	,348	
Fisher's Exact Test				,545	,348	
Linear-by-Linear Association	,964[c]	1	,326	,545	,348	,303
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is -,982.

Group * Tackle_F4 Crosstabulation

Count

		Tackle_F4		
		No	Yes	Total
Group	Control	2	3	5
	Experimental	4	2	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,782[a]	1	,376	,567	,392	
Continuity Correction[b]	,076	1	,782			
Likelihood Ratio	,790	1	,374	,567	,392	
Fisher's Exact Test				,567	,392	
Linear-by-Linear Association	,711[c]	1	,399	,567	,392	,325
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.

b. Computed only for a 2x2 table

c. The standardized statistic is -,843.

Group * Tackle_I5 Crosstabulation

Count

		Tackle_I5		
		No	Yes	Total
Group	Control	1	5	6
	Experimental	3	3	6
Total		4	8	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability

Pearson Chi-Square	1,500[a]	1	,221	,545	,273	
Continuity Correction[b]	,375	1	,540			
Likelihood Ratio	1,552	1	,213	,545	,273	
Fisher's Exact Test				,545	,273	
Linear-by-Linear Association	1,375[c]	1	,241	,545	,273	,242
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,00.

b. Computed only for a 2x2 table

c. The standardized statistic is -1,173.

Group * Tackle_M5 Crosstabulation

Count

		Tackle_M5		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is -,218.

Group * Tackle_F5 Crosstabulation

Count

		Tackle_F5		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	5	1	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,749[a]	1	,387	,545	,424	
Continuity Correction[b]	,034	1	,853			
Likelihood Ratio	,754	1	,385	,545	,424	
Fisher's Exact Test				,545	,424	
Linear-by-Linear Association	,681[c]	1	,409	,545	,424	,364
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.

b. Computed only for a 2x2 table

c. The standardized statistic is -,825.

Group * Tackle_I6 Crosstabulation

Count

		Tackle_I6		
		No	Yes	Total
Group	Control	4	2	6
	Experimental	5	1	6
Total		9	3	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability

Pearson Chi-Square	,444[a]	1	,505	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,451	1	,502	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,407[c]	1	,523	1,000	,500	,409
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,50.

b. Computed only for a 2x2 table

c. The standardized statistic is -,638.

Group * Tackle_M6 Crosstabulation

Count

		Tackle_M6		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	2	4	6
Total		5	6	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,782[a]	1	,376	,567	,392	
Continuity Correction[b]	,076	1	,782			
Likelihood Ratio	,790	1	,374	,567	,392	
Fisher's Exact Test				,567	,392	
Linear-by-Linear Association	,711[c]	1	,399	,567	,392	,325
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.

b. Computed only for a 2x2 table

c. The standardized statistic is ,843.

Group * Tackle_F6 Crosstabulation

Count

		Tackle_F6		
		No	Yes	Total
Group	Control	2	3	5
	Experimental	4	2	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,782[a]	1	,376	,567	,392	
Continuity Correction[b]	,076	1	,782			
Likelihood Ratio	,790	1	,374	,567	,392	
Fisher's Exact Test				,567	,392	
Linear-by-Linear Association	,711[c]	1	,399	,567	,392	,325
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.

b. Computed only for a 2x2 table

c. The standardized statistic is -,843.

Group * Tackle_I7 Crosstabulation

Count

		Tackle_I7		
		No	Yes	Total
Group	Control	3	3	6
	Experimental	4	2	6
Total		7	5	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,343[a]	1	,558	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,345	1	,557	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,314[c]	1	,575	1,000	,500	,379
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,50.
b. Computed only for a 2x2 table
c. The standardized statistic is -,561.

Group * Tackle_M7 Crosstabulation

Count

		Tackle_M7		
		No	Yes	Total
Group	Control	2	3	5
	Experimental	2	4	6
Total		4	7	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table
c. The standardized statistic is ,218.

Group * Tackle_F7 Crosstabulation

Count

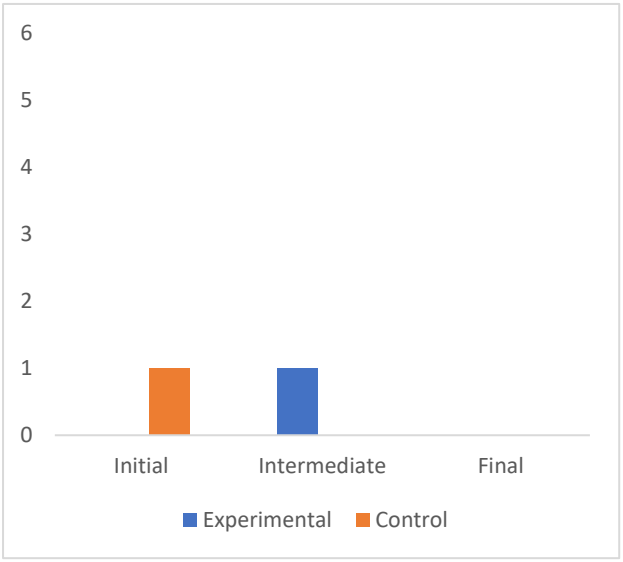
		Tackle_F7		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	5	1	6
Total		8	3	11

Chi-Square Tests

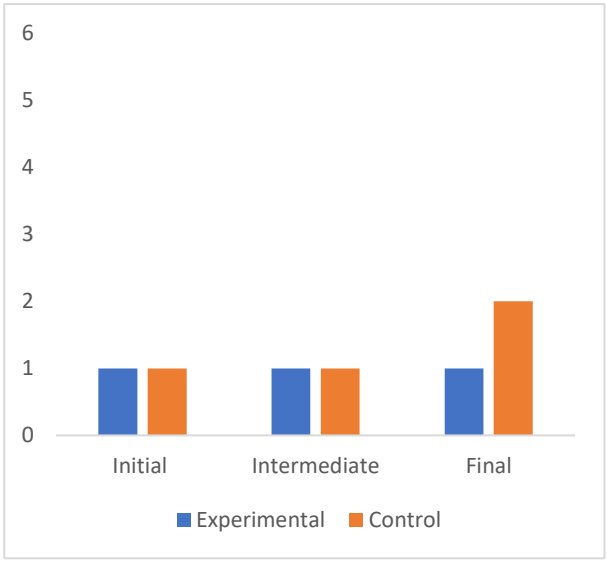
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,749[a]	1	,387	,545	,424	
Continuity Correction[b]	,034	1	,853			
Likelihood Ratio	,754	1	,385	,545	,424	
Fisher's Exact Test				,545	,424	
Linear-by-Linear Association	,681[c]	1	,409	,545	,424	,364
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is -,825.

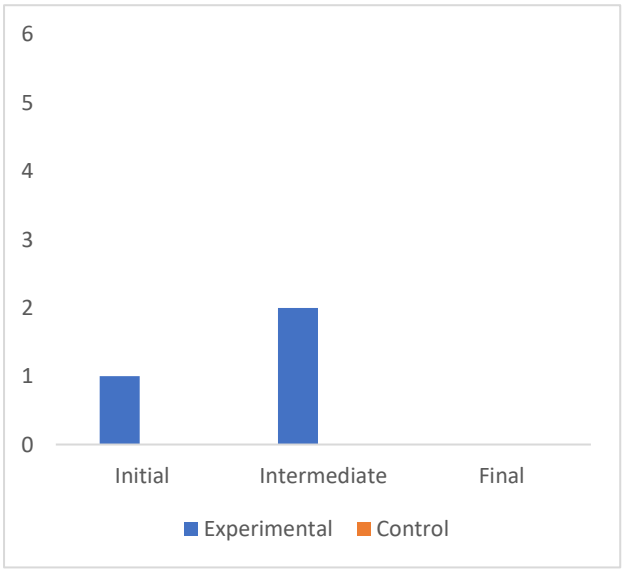
Appendix 6 – Attacker dribbled the defender



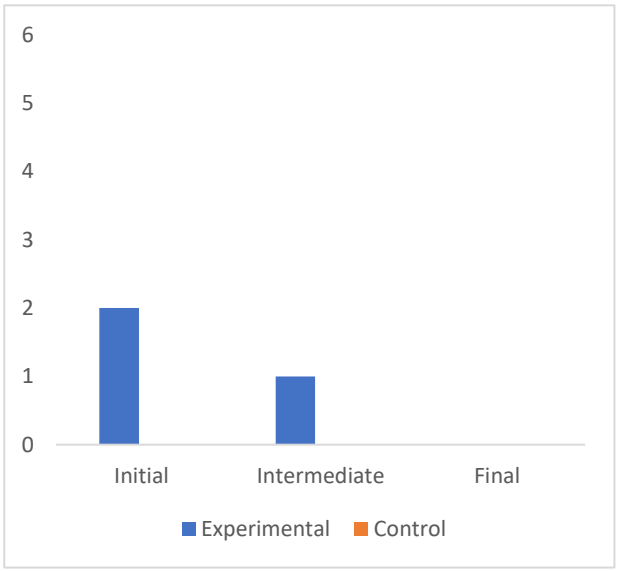
Attacker dribbled the defender - 1st position



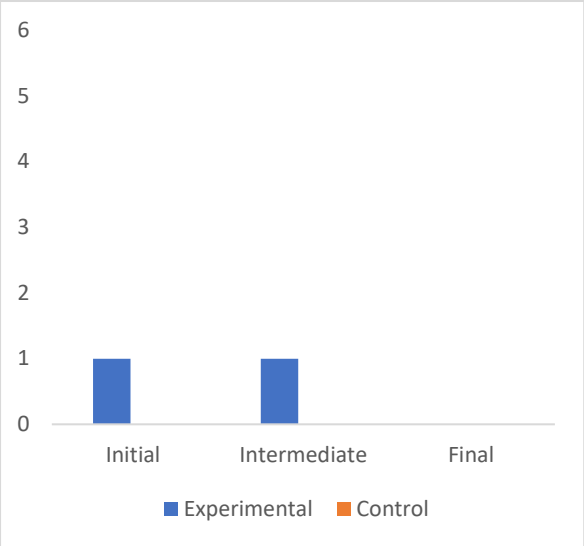
Attacker dribbled the defender – 2nd position



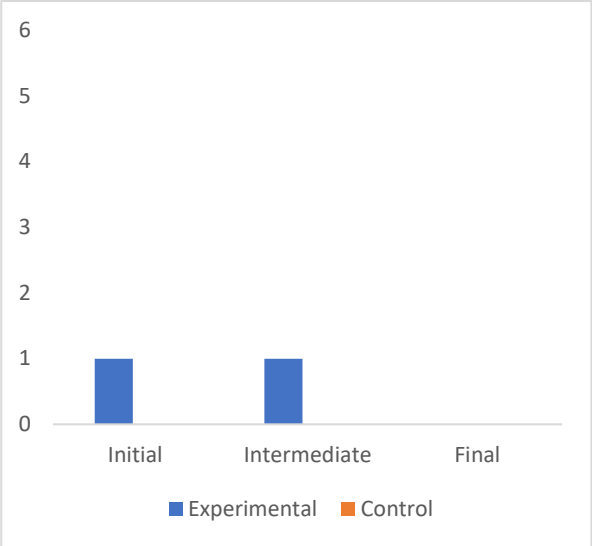
Attacker dribbled the defender – 3rd position



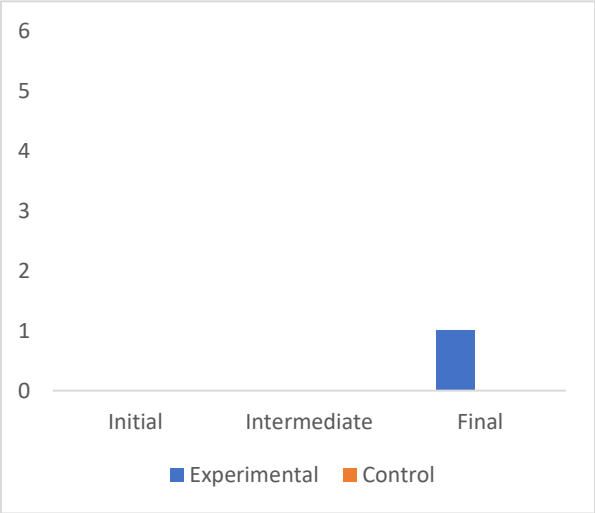
Attacker dribbled the defender – 4th position



Attacker dribbled the defender – 5th position



Attacker dribbled the defender – 6th position



Attacker dribbled the defender – 7th position

Group * Drible_I1 Crosstabulation

Count

		Drible_I1		
		No	Yes	Total
Group	Control	5	1	6
	Experimental	6	0	6
Total		11	1	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,091[a]	1	,296	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,477	1	,224	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	1,000[c]	1	,317	1,000	,500	,500
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is ,50.

b. Computed only for a 2x2 table

c. The standardized statistic is -1,000.

Group * Drible_M1 Crosstabulation

Count

		Drible_M1		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	5	1	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,917[a]	1	,338	1,000	,545	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,295	1	,255	1,000	,545	
Fisher's Exact Test				1,000	,545	
Linear-by-Linear Association	,833[c]	1	,361	1,000	,545	,545
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.

b. Computed only for a 2x2 table

c. The standardized statistic is ,913.

Group * Drible_F1 Crosstabulation

Count

		Drible_F1 No	Total
Group	Control	5	5
	Experimental	6	6
Total		11	11

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	11

a. No statistics are computed because Drible_F1 is a constant.

Group * Drible_I2 Crosstabulation

Count

		Drible_I2 No	Yes	Total
Group	Control	5	1	6
	Experimental	5	1	6
Total		10	2	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,000[a]	1	1,000	1,000	,773	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,000	1	1,000	1,000	,773	
Fisher's Exact Test				1,000	,773	
Linear-by-Linear Association	,000[c]	1	1,000	1,000	,773	,545
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.

b. Computed only for a 2x2 table

c. The standardized statistic is ,000.

Group * Drible_M2 Crosstabulation

Count

		Drible_M2		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	5	1	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,020[a]	1	,887	1,000	,727	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,020	1	,887	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,019[c]	1	,892	1,000	,727	,545
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is -,136.

Group * Drible_F2 Crosstabulation

Count

		Drible_F2		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	5	1	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,749[a]	1	,387	,545	,424	
Continuity Correction[b]	,034	1	,853			

Likelihood Ratio	,754	1	,385	,545	,424	
Fisher's Exact Test				,545	,424	
Linear-by-Linear Association	,681[c]	1	,409	,545	,424	,364
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is -,825.

Group * Drible_I3 Crosstabulation

Count

		Drible_I3		
		No	Yes	Total
Group	Control	6	0	6
	Experimental	5	1	6
Total		11	1	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,091[a]	1	,296	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,477	1	,224	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	1,000[c]	1	,317	1,000	,500	,500
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is ,50.
b. Computed only for a 2x2 table
c. The standardized statistic is 1,000.

Group * Drible_M3 Crosstabulation

Count

		Drible_M3		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	4	2	6
Total		9	2	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,037[a]	1	,154	,455	,273	
Continuity Correction[b]	,413	1	,521			
Likelihood Ratio	2,793	1	,095	,455	,273	
Fisher's Exact Test				,455	,273	
Linear-by-Linear Association	1,852[c]	1	,174	,455	,273	,273
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is ,91.

b. Computed only for a 2x2 table

c. The standardized statistic is 1,361.

Group * Drible_F3 Crosstabulation

Count

		Drible_F3 No	Total
Group	Control	5	5
	Experimental	6	6
Total		11	11

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	11

a. No statistics are computed because Drible_F3 is a constant.

Group * Drible_I4 Crosstabulation

Count

		Drible_I4 No	Yes	Total
Group	Control	6	0	6
	Experimental	4	2	6
Total		10	2	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,400[a]	1	,121	,455	,227	
Continuity Correction[b]	,600	1	,439			
Likelihood Ratio	3,175	1	,075	,455	,227	
Fisher's Exact Test				,455	,227	
Linear-by-Linear Association	2,200[c]	1	,138	,455	,227	,227
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.

b. Computed only for a 2x2 table

c. The standardized statistic is 1,483.

Group * Drible_M4 Crosstabulation

Count

		Drible_M4		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	5	1	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,917[a]	1	,338	1,000	,545	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,295	1	,255	1,000	,545	
Fisher's Exact Test				1,000	,545	
Linear-by-Linear Association	,833[c]	1	,361	1,000	,545	,545
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.

b. Computed only for a 2x2 table

c. The standardized statistic is ,913.

Group * Drible_F4 Crosstabulation

Count

		Drible_F4 No	Total
Group	Control	5	5
	Experimental	6	6
Total		11	11

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	11

a. No statistics are computed because Drible_F4 is a constant.

Group * Drible_I5 Crosstabulation

Count

		Drible_I5 No	Yes	Total
Group	Control	6	0	6
	Experimental	5	1	6
Total		11	1	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,091[a]	1	,296	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,477	1	,224	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	1,000[c]	1	,317	1,000	,500	,500
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is ,50.
b. Computed only for a 2x2 table
c. The standardized statistic is 1,000.

Group * Drible_M5 Crosstabulation

Count

		Drible_M5		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	5	1	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,917[a]	1	,338	1,000	,545	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,295	1	,255	1,000	,545	
Fisher's Exact Test				1,000	,545	
Linear-by-Linear Association	,833[c]	1	,361	1,000	,545	,545
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.
b. Computed only for a 2x2 table
c. The standardized statistic is ,913.

Group * Drible_F5 Crosstabulation

Count

		Drible_F5	
		No	Total
Group	Control	5	5
	Experimental	6	6
Total		11	11

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	11

a. No statistics are computed because Drible_F5 is a constant.

Group * Drible_I6 Crosstabulation

Count

		Drible_I6		
		No	Yes	Total
Group	Control	6	0	6
	Experimental	5	1	6
Total		11	1	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,091[a]	1	,296	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,477	1	,224	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	1,000[c]	1	,317	1,000	,500	,500
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is ,50.

b. Computed only for a 2x2 table

c. The standardized statistic is 1,000.

Group * Drible_M6 Crosstabulation

Count

		Drible_M6		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	5	1	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,917[a]	1	,338	1,000	,545	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,295	1	,255	1,000	,545	
Fisher's Exact Test				1,000	,545	
Linear-by-Linear Association	,833[c]	1	,361	1,000	,545	,545
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.

b. Computed only for a 2x2 table

c. The standardized statistic is ,913.

Group * Drible_F6 Crosstabulation

Count

		Drible_F6 No	Total
Group	Control	5	5
	Experimental	6	6
Total		11	11

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	11

a. No statistics are computed because Drible_F6 is a constant.

Group * Drible_I7 Crosstabulation

Count

		Drible_I7	
		No	Total
Group	Control	6	6
	Experimental	6	6
Total		12	12

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	12

a. No statistics are computed because Drible_I7 is a constant.

Group * Drible_M7 Crosstabulation

Count

		Drible_M7	
		No	Total
Group	Control	5	5
	Experimental	6	6
Total		11	11

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	11

a. No statistics are computed because Drible_M7 is a constant.

Group * Drible_F7 Crosstabulation

Count

		Drible_F7		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	5	1	6
Total		10	1	11

Chi-Square Tests

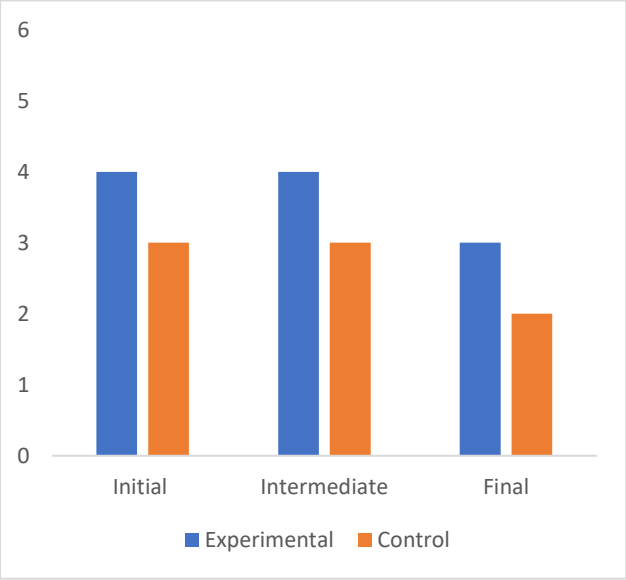
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,917[a]	1	,338	1,000	,545	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,295	1	,255	1,000	,545	
Fisher's Exact Test				1,000	,545	
Linear-by-Linear Association	,833[c]	1	,361	1,000	,545	,545
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.

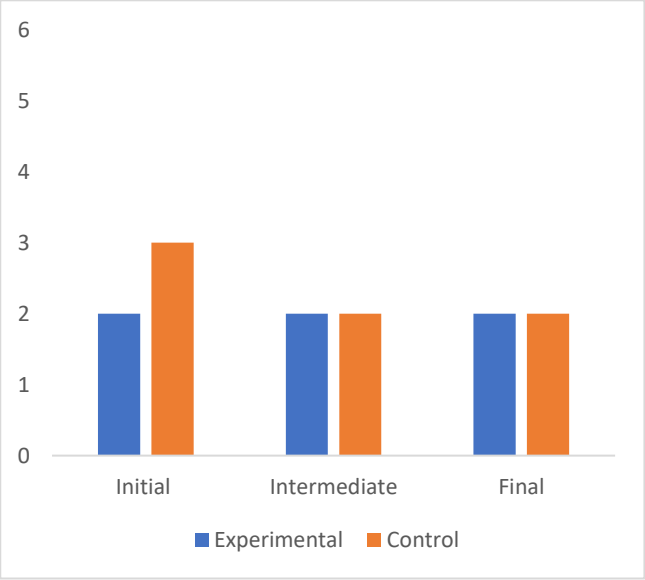
b. Computed only for a 2x2 table

c. The standardized statistic is ,913.

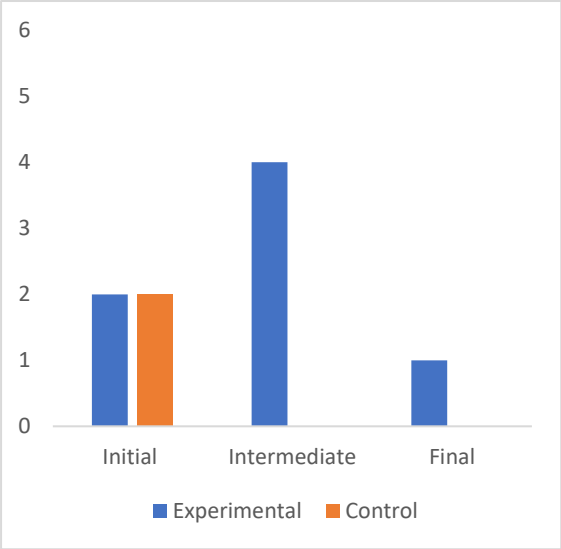
Appendix 7 – Ball goes towards the target



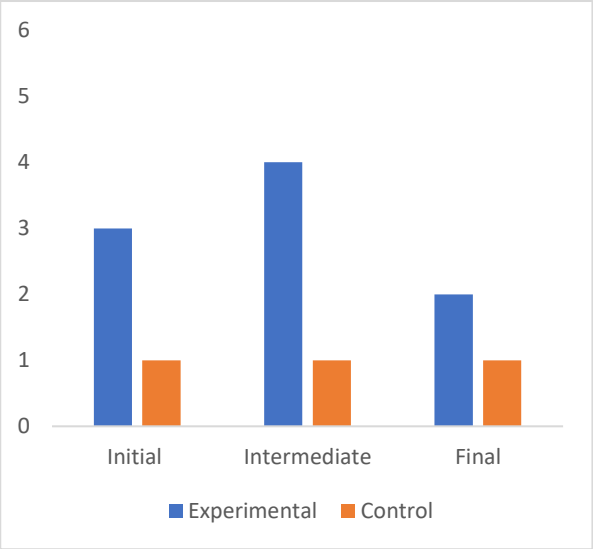
Shot within the target - 1st position



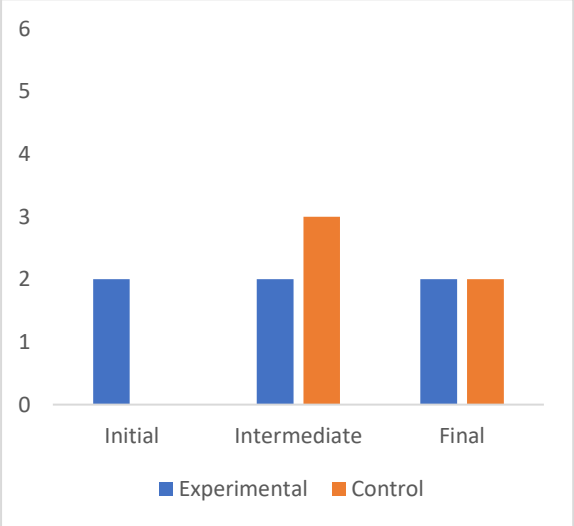
Shot within the target – 2nd position



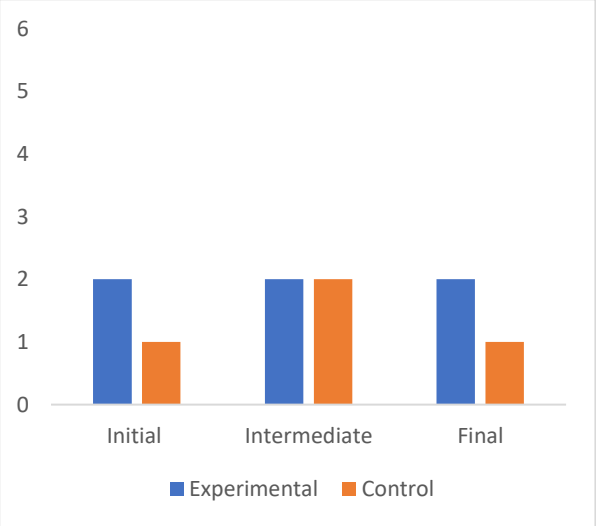
Shot within the target – 3rd position



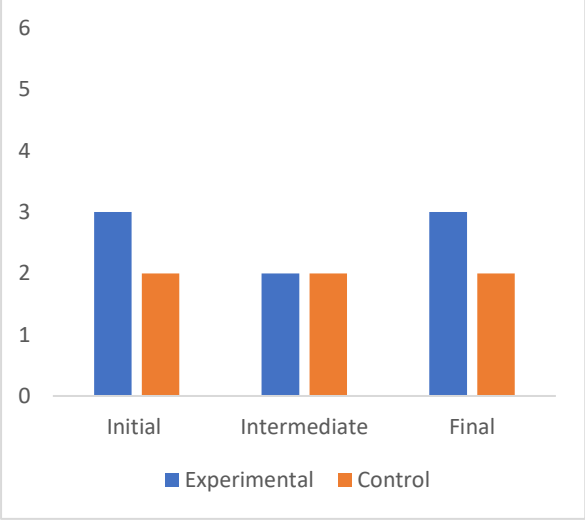
Shot within the target – 4th position



Shot within the target – 5th position



Shot within the target – 6th position



Shot within the target – 7th position

Group * Target_I1 Crosstabulation

Count

		Target_I1		
		No	Yes	Total
Group	Control	4	2	6
	Experimental	6	0	6
Total		10	2	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,400[a]	1	,121	,455	,227	
Continuity Correction[b]	,600	1	,439			
Likelihood Ratio	3,175	1	,075	,455	,227	
Fisher's Exact Test				,455	,227	
Linear-by-Linear Association	2,200[c]	1	,138	,455	,227	,227
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.

b. Computed only for a 2x2 table

c. The standardized statistic is -1,483.

Group * Tackle_M1 Crosstabulation

Count

		Tackle_M1		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	5	1	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,749[a]	1	,387	,545	,424	
Continuity Correction[b]	,034	1	,853			

Likelihood Ratio	,754	1	,385	,545	,424	
Fisher's Exact Test				,545	,424	
Linear-by-Linear Association	,681[c]	1	,409	,545	,424	,364
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is -,825.

Group * Target_F1 Crosstabulation

Count

		Target_F1		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	3	3	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,061[a]	1	,303	,545	,348	
Continuity Correction[b]	,160	1	,689			
Likelihood Ratio	1,099	1	,295	,545	,348	
Fisher's Exact Test				,545	,348	
Linear-by-Linear Association	,964[c]	1	,326	,545	,348	,303
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.
b. Computed only for a 2x2 table
c. The standardized statistic is ,982.

Group * Target_I2 Crosstabulation

Count

		Target_I2		
		No	Yes	Total
Group	Control	3	3	6
	Experimental	4	2	6
Total		7	5	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,343[a]	1	,558	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,345	1	,557	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,314[c]	1	,575	1,000	,500	,379
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,50.

b. Computed only for a 2x2 table

c. The standardized statistic is -,561.

Group * Target_M2 Crosstabulation

Count

		Target_M2		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is -,218.

Group * Target_F2 Crosstabulation

Count

		Target_F2		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

c. The standardized statistic is -,218.

Group * Target_I3 Crosstabulation

Count

		Target_I3		
		No	Yes	Total
Group	Control	4	2	6
	Experimental	4	2	6
Total		8	4	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,000[a]	1	1,000	1,000	,727	

Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,000	1	1,000	1,000	,727	
Fisher's Exact Test				1,000	,727	
Linear-by-Linear Association	,000[c]	1	1,000	1,000	,727	,455
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,00.

b. Computed only for a 2x2 table

c. The standardized statistic is ,000.

Group * Target_F3 Crosstabulation

Count

		Target_F3		
		No	Yes	Total
Group	Control	5	0	5
	Experimental	5	1	6
Total		10	1	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,917[a]	1	,338	1,000	,545	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	1,295	1	,255	1,000	,545	
Fisher's Exact Test				1,000	,545	
Linear-by-Linear Association	,833[c]	1	,361	1,000	,545	,545
N of Valid Cases	11					

a. 3 cells (75,0%) have expected count less than 5. The minimum expected count is ,45.

b. Computed only for a 2x2 table

c. The standardized statistic is ,913.

Group * Target_I4 Crosstabulation

Count

		Target_I4		
		No	Yes	Total
Group	Control	5	1	6
	Experimental	3	3	6

Total	8	4	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1,500[a]	1	,221	,545	,273	
Continuity Correction[b]	,375	1	,540			
Likelihood Ratio	1,552	1	,213	,545	,273	
Fisher's Exact Test				,545	,273	
Linear-by-Linear Association	1,375[c]	1	,241	,545	,273	,242
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,00.

b. Computed only for a 2x2 table

c. The standardized statistic is 1,173.

Group * Target_M4 Crosstabulation

Count

		Target_M4 No	Yes	Total
Group	Control	4	1	5
	Experimental	2	4	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,396[a]	1	,122	,242	,175	
Continuity Correction[b]	,883	1	,347			
Likelihood Ratio	2,516	1	,113	,242	,175	
Fisher's Exact Test				,242	,175	
Linear-by-Linear Association	2,178[c]	1	,140	,242	,175	,162
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.

b. Computed only for a 2x2 table
c. The standardized statistic is 1,476.

Group * Target_F4 Crosstabulation

Count

		Target_F4		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	4	2	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,244[a]	1	,621	1,000	,576	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,249	1	,618	1,000	,576	
Fisher's Exact Test				1,000	,576	
Linear-by-Linear Association	,222[c]	1	,637	1,000	,576	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is ,471.

Group * Target_I5 Crosstabulation

Count

		Target_I5		
		No	Yes	Total
Group	Control	6	0	6
	Experimental	4	2	6
Total		10	2	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2,400[a]	1	,121	,455	,227	
Continuity Correction[b]	,600	1	,439			
Likelihood Ratio	3,175	1	,075	,455	,227	
Fisher's Exact Test				,455	,227	
Linear-by-Linear Association	2,200[c]	1	,138	,455	,227	,227
N of Valid Cases	12					

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,00.
b. Computed only for a 2x2 table
c. The standardized statistic is 1,483.

Group * Target_M5 Crosstabulation

Count

		Target_M5		
		No	Yes	Total
Group	Control	2	3	5
	Experimental	4	2	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,782[a]	1	,376	,567	,392	
Continuity Correction[b]	,076	1	,782			
Likelihood Ratio	,790	1	,374	,567	,392	
Fisher's Exact Test				,567	,392	
Linear-by-Linear Association	,711[c]	1	,399	,567	,392	,325
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.
b. Computed only for a 2x2 table
c. The standardized statistic is -,843.

Group * Target_F5 Crosstabulation

Count

		Target_F5		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.
b. Computed only for a 2x2 table
c. The standardized statistic is -,218.

Group * Target_I6 Crosstabulation

Count

		Target_I6		
		No	Yes	Total
Group	Control	5	1	6
	Experimental	4	2	6
Total		9	3	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,444[a]	1	,505	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,451	1	,502	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,407[c]	1	,523	1,000	,500	,409
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,50.
b. Computed only for a 2x2 table
c. The standardized statistic is ,638.

Group * Target_M6 Crosstabulation

Count

		Target_M6		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.
b. Computed only for a 2x2 table
c. The standardized statistic is -,218.

Group * Target_F6 Crosstabulation

Count

		Target_F6		
		No	Yes	Total
Group	Control	4	1	5
	Experimental	4	2	6
Total		8	3	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,244[a]	1	,621	1,000	,576	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,249	1	,618	1,000	,576	
Fisher's Exact Test				1,000	,576	
Linear-by-Linear Association	,222[c]	1	,637	1,000	,576	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,36.
b. Computed only for a 2x2 table
c. The standardized statistic is ,471.

Group * Target_I7 Crosstabulation

Count

		Target_I7		
		No	Yes	Total
Group	Control	4	2	6
	Experimental	3	3	6
Total		7	5	12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,343[a]	1	,558	1,000	,500	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,345	1	,557	1,000	,500	
Fisher's Exact Test				1,000	,500	
Linear-by-Linear Association	,314[c]	1	,575	1,000	,500	,379
N of Valid Cases	12					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,50.
b. Computed only for a 2x2 table
c. The standardized statistic is ,561.

Group * Target_M7 Crosstabulation

Count

		Target_M7 No	Yes	Total
Group	Control	3	2	5
	Experimental	4	2	6
Total		7	4	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,052[a]	1	,819	1,000	,652	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,052	1	,819	1,000	,652	
Fisher's Exact Test				1,000	,652	
Linear-by-Linear Association	,048[c]	1	,827	1,000	,652	,455
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table
c. The standardized statistic is -,218.

Group * Target_F7 Crosstabulation

Count

		Target_F7		
		No	Yes	Total
Group	Control	3	2	5
	Experimental	3	3	6
Total		6	5	11

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	,110[a]	1	,740	1,000	,608	
Continuity Correction[b]	,000	1	1,000			
Likelihood Ratio	,110	1	,740	1,000	,608	
Fisher's Exact Test				1,000	,608	
Linear-by-Linear Association	,100[c]	1	,752	1,000	,608	,433
N of Valid Cases	11					

a. 4 cells (100,0%) have expected count less than 5. The minimum expected count is 2,27.
b. Computed only for a 2x2 table
c. The standardized statistic is ,316.